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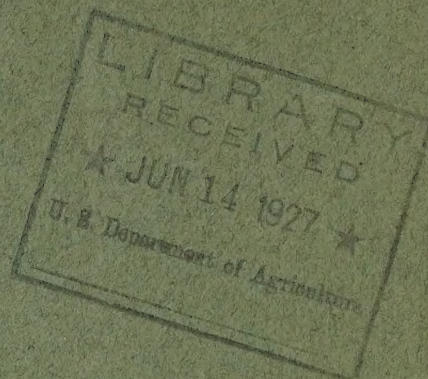
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STATEMENT OF
INCREASES, DECREASES, AND CHANGES IN LANGUAGE
IN THE
ESTIMATES OF APPROPRIATIONS
FOR THE
DEPARTMENT OF AGRICULTURE
FOR THE
FISCAL YEAR ENDING JUNE 30, 1928.

AND OF
WORK DONE UNDER EACH OF THE APPROPRIATION ITEMS.

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OFFICE OF THE SECRETARY.

(a) SALARIES.

Appropriation, 1927	\$665,960
Budget, 1928.	<u>657,000</u>
Decrease.	8,960

The decrease of \$8,960 in this item is due to the following: (1) An apparent decrease of \$2,200 due to the transfer of one clerical position of grade CAF 6 from the Office of the Secretary to the Extension Service, with a corresponding increase in the appropriation for "Salaries" for that unit; and (2) A decrease of \$6,760 in anticipation of salary lapses.

Work Done under Appropriation.

This appropriation provides the salaries for all branches of the Office of the Secretary exclusive of the Extension Service, the Office of Experiment Stations, and the Office of Information. It includes the salaries of the Secretary of Agriculture and his immediate office, the offices of the Assistant Secretary, Director of Scientific Work, Director of Regulatory Work, Director of Extension, Director of Personnel and Business Administration (including the Division of Accounts and Disbursements, the Chief Clerk's Office, Personnel Section, Division of Purchase, Sales and Traffic, Secretary's Accounting Section, Mail and Files Section, Telephone and Telegraph Office, watch force, laborers, and charwomen), and the Solicitor. The salaries of 405 persons are payable from this appropriation, as follows:

Clerical, Administrative, and Fiscal.	178
Professional and scientific	25
Subprofessional	1
Custodial	165
District law officers	6
Relief watchmen	<u>30</u>
	405

The Custodial service includes 76 regular watchmen and 30 relief watchmen, necessary to guard the Department's numerous buildings.

(b) COMPENSATION, MECHANICAL SHOPS AND POWER PLANT.

Appropriation, 1927.	\$92,000
Budget 1928.	<u>91,000</u>
Decrease	1,000

Work Done under Appropriation.

This appropriation provides the compensation of the personnel engaged in the maintenance and operation of the Mechanical Shops and Power Plant of the Department. This force performs work in the repair of buildings, the construction of apparatus and models for the various bureaus of the Department, and the maintenance and operation of the Power Plant which furnishes heat and electricity to nineteen buildings, including the

Administration Building, the East and West Wing, Entomology Building, the greenhouses, and several rented buildings in the immediate vicinity. Under the law the work performed by the Mechanical Shops for the several bureaus of the Department is reimbursed to the appropriation at cost, but approximately \$85,000 of the appropriation is not reimburseable, being expended for general operations in the maintenance of the Department, such as the Power Plant, elevator service, repairs to plumbing, heating, and electric systems, and the like. A force of approximately 131 men is maintained.

(c) MISCELLANEOUS EXPENSES.

Appropriation, 1927	\$180,000
Budget, 1928	<u>143,000</u>
Decrease	37,000

Changes in Language

The language of the item has been amended by omitting the clause "for the purchase, subsistence, and care of horses and the purchase and repair of harness and vehicles, for official purposes only, including necessary expenses." It has also been amended by omitting the words "an automobile for the official use of the Secretary of Agriculture" and inserting in lieu thereof the words "not to exceed three motor-propelled passenger-carrying vehicles and one motor cycle for official purposes". This change is required in order to permit the payment of necessary expenses for the maintenance, repair and operation of these government-owned vehicles in the District of Columbia for official purposes from this appropriation. The language has been further amended by omitting the clause "not to exceed \$35,000, which shall be immediately available for the purchase of additional land for experimental purposes adjoining the experimental farm of the Department of Agriculture near Beltsville, Maryland," as this purchase will be consummated during the fiscal year 1927. The language of the final clause has been changed by omitting "of which not to exceed \$4,000, in addition to the turn-in value of the automobile now in use by the Secretary of Agriculture may be used for the purchase of an automobile for his official use", and substituting therefor the following: "of which not to exceed \$1,500, in addition to the turn-in value of three automobiles now in use by the Department of Agriculture, may be used for the purchase of an automobile for official use".

Work Done Under Appropriation.

This appropriation, as shown by its terms, provides for a great variety of miscellaneous objects necessary in the conduct of the work of the Department, the largest item being approximately \$48,000 a year for coal. It provides also for stationery, furniture and office equipment, lumber, hardware, paint, telegraphing, telephones, ice, postage, repairs and improvements to buildings and heating apparatus, freight and express charges, and miscellaneous supplies and expenses not otherwise provided for and necessary for the practical and efficient work of the Department.

(d) RENT OF BUILDINGS

Appropriation, 1927	\$195,366
Budget, 1928	<u>180,366</u>
Decrease	15,000

The decrease of \$15,000 in this item is apparent only, there being an actual decrease of \$25,000, as follows:

(a) An actual decrease of \$25,000, made possible through the purchase by the United States of the Economics Building at 300 Linworth Place, Southwest. Effective October 15, 1926 this building passed by purchase into possession of the United States and payment of rental ceased on that date.

(b) An apparent increase of \$10,000, to provide for the rental of the Fixed Nitrogen Research Laboratory at American University Park during the fiscal year 1928. Heretofore, the Agricultural Act has contained a paragraph authorizing the payment of that amount from National Defense Act funds transferred from the War Department.

Change in Language.

The paragraph authorizing the payment of rent for the Fixed Nitrogen Research Laboratory from funds transferred from the War Department to the Department of Agriculture has been omitted. This paragraph reads as follows: "For rent for the Fixed Nitrogen Research Laboratory, \$10,000, to be paid from funds transferred to the Department of Agriculture by the War Department." This amount has been included in the appropriation for rent of buildings for the fiscal year 1928, as indicated above.

Work Done Under Appropriation.

The title of the appropriation explains the object. On September 1, 1926 the Department had under lease in Washington twenty-one buildings or parts of buildings in various parts of the city. The individual rentals range from as high as \$35,000 a year for large buildings such as the Forest Service building, down to \$360 a year for a small alley structure used for storage.

OFFICE OF INFORMATION

(a) SALARIES AND EXPENSES

Appropriation, 1927.....	\$366,380
Budget, 1928.....	<u>377,000</u>
Increase.....	\$10,620

Heretofore the Agricultural Bill has carried separate paragraphs for "Salaries" and "General Expenses". It is now proposed to consolidate these two items into one paragraph, to cover both the employment of personnel and the purchase of supplies and equipment necessary for the operation of the office but retaining a limitation on the amount which may be expended for salaries. This is done to permit the purchase of labor-saving machinery wherever feasible in order that the great volume of work may be handled more promptly and more efficiently and with a minimum number of employees. A reduction of \$8,380 has been made in the limitation on the amount which may be expended for salaries in the District of Columbia.

The apparent increase of \$10,620, is made up of the following:

- (1) An increase of \$15,000 for the purpose of paying the salaries of employees for radio service work, which work consists of preparing and disseminating agricultural information to the public through the various large broadcasting stations of the county. During 1927 these salaries are being paid ^{from} the rolls of bureaus which rolls have been reduced accordingly. (2) An actual decrease of \$4,380.

Work Done Under Appropriation

This appropriation provides for the salaries of employees and for general expenses of operating the Office of Information, which consists of six general divisions. All office supplies and materials, labor-saving machinery, machine repair parts, telegraph and telephone service, travel, etc., are paid for from this appropriation. This Office has general direction of the editorial, printing and distribution work of the Department, the press service work, and the handling of practically all the multigraph and mimeograph work of the Department. It edits and prepares for the Public Printer the various manuscripts of the Department, handles miscellaneous and Congressional requests for bulletins and other information in printed or multigraph form concerning the activities of the Department, prepares illustrations, charts, etc., for the bulletins issued, maintains mailing lists used in the distribution of all publications, plans and prepares addresses concerning agriculture for radio broadcasting, and prepares and disseminates to the public press agricultural facts taken from publications, official orders, and from oral statements of Department specialists.

(b) PRINTING AND BINDING (Regular).

Appropriation, 1927.....	\$738,000
Budget, 1928.....	<u>730,000</u>
Decrease.....	\$ 8,000

Work Done Under Appropriation

All the printing work for the various bureaus and offices of the Department, both manuscript and job, is paid from this appropriation. The following list shows the new publications, exclusive of periodicals, issued during the fiscal year 1926:

	<u>Number of Titles</u>	<u>Copies Printed</u>
Farmers' Bulletins.	40	3,236,885
Department Bulletins.	72	399,750
Department Circulars.	41	946,000
Secretary and Miscellaneous Circulars	30	1,014,500
Statistical Bulletins	1	6,000
Yearbook.	1	20,000
Yearbook Separates.	13	75,800
Soil Survey, Full Report.	2	2,000
Soil Survey, Advance Sheets	28	28,000
Service and Regulatory Announcements.	56	427,250
J. A. R. Reprints	188	215,010
Miscellaneous Publications.	19	76,500
Total	491	6,447,695

(c) PRINTING AND BINDING "Disease
of the Horse" and "Diseases of
Cattle."

Appropriation, 1927.	\$200,000
Budget, 1928	-----
Decrease.	\$200,000

The decrease of \$200,000 is due to the elimination of the special paragraph for printing and binding "Diseases of the Horse" and "Diseases of Cattle". The appropriation for this purpose was included in the 1927 Act by Congressional action, and as far as the Department knows, no funds will be required for these publications during the fiscal year 1928.

Change in Language.

The following paragraph has been eliminated from the Budget. "For printing, binding, and distribution of the publications entitled "Diseases of the Horse" and "Diseases of Cattle."

LIBRARY, DEPARTMENT OF AGRICULTURE.

The Library has been transferred from its present position to the Office of the Secretary, following the Office of Information.

(a) SALARIES.

Appropriation, 1927 ..	\$54,680
Budget, 1928	54,680

Work Done Under Appropriation.

This appropriation is used entirely for salaries of employees engaged in the work of the Department Library.

(b) GENERAL EXPENSES.

Appropriation, 1927	\$29,500
Budget, 1928	29,500

Work Done Under Appropriation.

With the exception of approximately \$5,000 (used for the payment of salaries of Library employees), this appropriation is available for the purchase of books of reference, law books, technical and scientific books, and periodicals; also for office furniture, library fixtures, library cards, supplies, repairs, express charges, and other miscellaneous expenses. The Library assists Department workers, the State agricultural colleges and experiment stations, and the public in general by making available the literature of agriculture and the related sciences and by supplying bibliographical information in regard to these subjects.

OFFICE OF EXPERIMENT STATIONS.

(a) SALARIES:

Appropriation, 1927	\$35,386
Budget, 1928	35,386

Work Done Under Appropriation.

This fund is used for the payment of the salaries of the Chief of the office and most of the clerical force, numbering 19 persons.

(b) AGRICULTURAL EXPERIMENT STATIONS.

Appropriation, 1927:

Under Hatch Act (Act of March 2, 1887)...	\$720,000
Under Adams Act (Act of March 16, 1906)...	720,000
Under Purnell Act (Act of Feb. 24, 1925)...	<u>1,440,000</u>
	2,880,000

Budget, 1928:

Under Hatch Act.....	720,000
Under Adams Act.....	720,000
Under Purnell Act.....	<u>1,920,000</u>
	3,360,000

Increase.....	480,000
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The increase of \$480,000 is required to carry into effect the provisions of the Act approved February 24, 1925, known as the Purnell Act, which authorizes an appropriation for the fiscal year 1928 sufficient to pay \$40,000 to each State for the more complete endowment of the agricultural experiment stations. The total of the 48 states \$1,920,000, will be \$480,000 greater than the amount appropriated for the fiscal year 1927.

Work Done Under Appropriation.

The \$720,000 provided under the Hatch Act is warranted directly to the several States for the maintenance of their agricultural experiment stations, \$15,000 for each State.

The \$720,000 provided under the Adams Act, for the further endowment of the agricultural experiment stations, is warranted directly to the states in the amount of \$15,000 to each State annually.

Under the terms of the Purnell Act, \$30,000 is authorized to be appropriated to each State during 1927 for the more complete endowment and maintenance of its agricultural experiment station. Authority is carried in this Act for the increase of this sum in 1928 to \$40,000 for each State. Under the Act the money will be warranted directly to the several States, as in the case of Hatch and Adams Acts' funds.

(c) GENERAL EXPENSES.

(Administration of Hatch, Adams, and Purnell Acts, and of Insular Experiment Stations of Department).

Appropriation, 1927	\$89,180
Budget, 1928	89,180

Work Done Under Appropriation.

This appropriation provides for the administration of Hatch, Adams, and Purnell Acts, and for administrative work incident to the operation of the Department's agricultural experiment stations in Alaska, Hawaii, Guam, Porto Rico, and the Virgin Islands. It covers the salaries of the technical force of the office and a few clerical assistants, about 29 in all; purchase of supplies and equipment; travel; communication service, including foreign postage for the Experiment Station Record; repairs; etc.

In connection with the administration of the Hatch, Adams, and Purnell Acts, the office representing the Secretary of Agriculture in his administrative relations with the State stations under the Acts mentioned, passes upon the research projects undertaken with the Federal funds, subjecting them to critical examination for their character and the method of procedure. It thus sets standards for the investigations on which Federal funds are used, insures proper provision for the work, and makes suggestions for maintaining it on a high plane. It makes an annual inspection of the work and expenditures of the individual stations, and prepares an annual report to Congress on the work and expenditures of the stations.

In another of its functions performed under this appropriation, the Office of Experiment Stations acts as a clearing house for agricultural information along scientific lines. It prepares for publication the Experiment Station Record, a technical abstract journal now in its fiftyfifth volume. In the Experiment Station Record the world's literature on agricultural research and its application to practical agriculture is reviewed. Two volumes, each with an index, are issued annually, the combined number of abstracts published during the year being about 7,000. These abstracts, which are prepared by experts in the various sciences, present brief summaries of the results obtained by investigators in agriculture and cognate sciences throughout the world, so that the Record supplies to workers in the agricultural colleges and experiment stations and related institutions, information that in many cases is otherwise inaccessible.

In connection with the administration of the insular experiment stations of the Department, the office endeavors to correlate the work of the stations with that of the Department, so far as applicable, to avoid unnecessary duplication and to secure the greatest efficiency in the work.

(d) INSULAR EXPERIMENT STATIONS.

Appropriation, 1927 ...	\$233,980
Budget, 1928	237,640
Increase	3,660

The increase of \$3,660 will be used for the following purposes: (a) \$840 at the Guam Experiment station for the purchase of equipment and (b) \$2820 at the Virgin Islands station for employment of an associate horticulturalist.

Work Done Under Appropriation.

(1) Alaska stations.- Agricultural experiment stations are maintained at Sitka, Kodiak, Matanuska, Fairbanks. The principal function of these stations is the development of a type of agriculture suited to the respective regions. The work at Sitka consists largely in small fruit and vegetable experiments, the southeastern part of Alaska by reason of its contour and climate not being suited to general agriculture. Through plant introductions and breeding, varieties of small fruits and vegetables have been secured that are adapted to the region and they may be found in nearly every garden. At Kodiak animal husbandry is given most attention, and an effort is being made to secure types of cattle and sheep that will withstand the cold, wet winters of southwestern Alaska. Galloway cattle and some of the coarse-wooled sheep have been found perfectly hardy, and the problem now is their winter management under economic conditions. At Matanuska, which is on the line of the Alaska Railroad, general farming is being developed, particular attention being paid to grain and forage crops, root crops, stock breeding and dairying. Hardy varieties of spring wheat, barley, and oats have been developed, and the adaptability of several breeds of livestock is being investigated. Milking shorthorn, Galloway, and Holstein cattle are maintained, and crosses have been made between the Galloway and Holstein breeds to get the hardiness of one breed combined with the milk production of the other. Several of the crossbred cattle are in milk and the experiment seems promising. At the Fairbanks station grain and root crop investigations are the most important lines of work. Through plant breeding varieties of spring wheat, oats, and barley have been developed that mature in the average summer season of the region. The Fairbanks station is representative of a large agricultural area of the Tanana Valley. At the Rampart station, now closed, plant breeding and seed production have been the leading lines of work, and from this station the new varieties were sent to other places for trial.

(2) Hawaii station.- This station is endeavoring to diversify the agriculture of the Hawaiian Islands without disturbing the major agricultural activities - sugar production and pineapple growing. The problems of both these industries are well looked after by private experiment stations supported by the industries, and the Federal Experiment station is devoting its energies to investigating problems of the homesteader or independent farmer. For some time after the establishment of the station it carried on work with pineapple production and found the cause and means for the prevention of a disease that threatened the destruction of the industry. Through its research it was made possible to replant more than 10,000 acres which had been abandoned. The principal investigations now in progress include plant breeding and propagation of tropical agricultural and horticultural crops, the utilization of crop material that is frequently lost through over-production, the establishment of new agricultural industries, soil management studies, forage plant introduction and improvement, and cooperative dairying and poultry production. The station also is conducting a demonstration farm in a homestead region on Maui, has an extension agent on Hawaii (which has the largest number of independent farmers) and is supervising boys' and girls' club work on all the islands.

(3) Porto Rico station.- The activities of the Porto Rico station are directed to the development and diversified agriculture. Its principal investigations are in plant breeding of sugar cane, corn, and forage crops; soil manage-

ment and rotation experiments; investigation of tropical fruits and vegetables; coffee plantation improvement, the introduction of promising tropical agricultural and horticultural crops; studies of citrus fruit and pineapple problems; plant diseases and insect enemies of economic plants and means for their control; parasites of domestic animals and their control; stock breeding; dairying, etc. The Porto Rico station was the pioneer in attempts to control cattle ticks, and the demonstrations of the station resulted in the establishment of over 200 public and private dipping vats. As a result of the campaign for tick eradication livestock production, and especially dairying, has received quite an impetus. The station has had marked success in its experiments in crossing native cattle with introduced bulls of dairy breeds, and its example is being followed quite extensively, very much to the improvement of dairy product supplies. On the discovery of the mosaic disease of sugar cane the station pointed out the way to prevent serious loss through the planting of varieties which it had that were immune or highly resistant to the disease.

(4) Guam station.-- This station is endeavoring to develop a type of tropical agriculture adapted to the island of Guam and its people. When the station was established the agriculture of the island was in a very primitive state. Through its introduction of improved tropical crops and forage plants and better livestock, a great improvement is reported, but there is much yet to be done, as the adult population is slow to change. The principal lines of work now in progress are the improvement of livestock, crops, and cropping methods, and the introduction of new and better tropical forage plants, vegetables, etc. An effort is being made to determine the value of local feeding stuffs to avoid the expense of importing them. Success has been met with in feeding coconut meal, a by-product of the extraction of coconut oil. Work has been begun on experiments for the control of the coconut scale which appeared in large numbers about three years ago and threatened the copra industry of the island. Under a deficiency appropriation of December 5, 1924, work on the control of this pest was begun, and the situation now seems to be in hand. In addition to the coconut scale situation, the European corn root borer and the Indian rice bug have appeared in destructive numbers, and attention will be given these pests along with the coconut scale control.

(5) Virgin Islands station.-- The Virgin Islands experiment station was in operation on the island of St. Croix when the islands were purchased from Denmark, and its administration was taken over by the U. S. Department of Agriculture on January 1, 1920. The principal investigations in progress are designed to diversify the agriculture of the islands and develop it along new lines. Changed economic conditions, especially on St. Thomas, indicate the necessity of developing some kind of agriculture to give employment to people who formerly were employed about the harbor. The station has undertaken demonstration work for the benefit of these people, and is carrying this forward as rapidly as available funds will permit. The principal agricultural industries of the islands at this time are sugar production and stock raising, and the station is giving attention to the problems of plant and animal breeding for the improvement of the present stocks. A variety of sugar cane has been bred by the station that is better than the standard variety now grown in St. Croix, and it has been distributed to Porto Rico, Cuba, and elsewhere in the West Indies, where it is proving of first rank for growing without irrigation. Experiments are in progress for the improvement of corn and for restoring Sea Island cotton production to its former importance. The Virgin Islands

were lacking in the production of tropical fruits and vegetables, and the station has introduced many varieties and is studying the conditions under which they can best be grown. Other investigations in progress include control of plant diseases and insect pests, forestry, especially the replanting of denuded areas, systems of cropping, soil management, livestock improvement and dairying, forage crop introductions, time of planting for winter garden vegetables, etc.

EXTENSION SERVICE.

(a) SALARIES.

Appropriation, 1927....	\$134,103
Budget, 1928.....	<u>134,300</u>
Increase.....	197

The increase of \$197 in this item is brought about in the following manner: (1) An apparent increase of \$2,200 due to the transfer of one clerical position of C.A.F. 6 from the "Salaries" appropriation, Office of the Secretary, which appropriation has been correspondingly decreased; and (2) a decrease of \$2,003 in anticipation of salary lapses.

Work Done Under Appropriation.

This appropriation provides for the salaries of employees in Washington, D. C., attached to the various units comprising the Extension Service.

(b) FARMERS' COOPERATIVE DEMONSTRATIONS.

Appropriation, 1927....	\$1,308,540
Budget, 1928.....	<u>1,300,000</u>
Decrease.....	8,540

Work Done Under Appropriation.

This appropriation is available for salaries of employees of the Department of Agriculture with headquarters in Washington, general office expenses, and for cooperation with State agricultural colleges in carrying on extension work in agriculture and home economics in all its phases through the payment of field salaries of county agricultural agents, county home demonstration agents, club workers, farm management demonstrators, and the necessary supervising officers located in the various states.

(c) COOPERATIVE AGRICULTURAL EXTENSION WORK.

Appropriation, 1927....	\$1,300,000
Budget, 1928.....	<u>1,300,000</u>

Work Done Under Appropriation.

These funds supplement the permanent annual appropriation of \$4,580,000 provided under the Smith-Lever Act of May 8, 1914, paid direct to the State colleges of agriculture as Federal aid for the promotion of extension work in agriculture and home economics. Programs of work and expenditures under Federal Smith-Lever funds are supervised by the Department of Agriculture.

(d) DEMONSTRATIONS ON RECLAMATION PROJECTS.

Appropriation, 1927....	\$38,640
Budget, 1928.....	<u>38,640</u>

Work Done Under Appropriation.

This appropriation is used for the payment of salaries and expenses of demonstrators employed by the Department to encourage and aid in the agricultural development of the Government reclamation projects. These demonstrators assist and advise individuals and groups on the projects, giving special attention to the building up of the livestock industry.

(e) AGRICULTURAL EXHIBITS.

Appropriation, 1927.....	\$99,745
Budget, 1928.....	<u>95,000</u>
Decrease.....	4,745

Work Done Under Appropriation.

This appropriation covers the preparation and display of agricultural exhibits at State and interstate fairs and expositions. Several million people are reached annually through agricultural exhibits which present the results of the Department's research in a striking and interesting way.

(f) Exhibit, Third World's Poultry Congress (Deficiency)

Appropriation, 1927.....	\$20,000
Budget, 1928.....	<u>- -</u>
Decrease.....	20,000

The Second Deficiency Act of July 3, 1926 contained a paragraph to enable the Secretary of Agriculture to prepare, transport and demonstrate a suitable national exhibit for display at the Third World's Poultry Congress, to be held at Ottawa, Canada, during 1927, and carried an appropriation of \$20,000. Since this appropriation will remain available during the fiscal year 1928 it is expected that no additional funds for that year will be required.

(g) ADMINISTRATIVE EXPENSES.

Appropriation, 1927.....	\$9,540
Budget, 1928.....	9,540

Work Done Under Appropriation.

This appropriation takes care of the salaries of the personnel of the Office of the Director of Extension Work, the travel expenses of the Director of Extension Work, and the salaries of four persons who handle the personnel work of the entire Extension Service.

Note:- In connection with the Extension Service, also see "Miscellaneous Items" for "Cooperative Farm Forestry", (page 99), and "Collection of Seed Grain Loans", (page 103).

WEATHER BUREAU

(a) SALARIES

Appropriation, 1927	\$452,957
Budget, 1928	448,000
Decrease	4,957

Work Done Under Appropriation.

This appropriation is used for the payment of salaries to the Chief of Bureau and 326 others, both in Washington and in the field. Of the total number of employees, 168 are in the Departmental Service in Washington and 159 in the field. In general, these employees are engaged in administrative work, clerical duties, printing and mechanical work, telegraphing and the physical maintenance of the telegraph lines, and custodial duties embracing all lines of Weather Bureau activities.

(b) INTRODUCTORY PARAGRAPH, WEATHER BUREAU

The language of the introductory paragraph has been amended by inserting in the opening clause after the word "Agriculture" the words "and the amendment thereof contained in Section 5 (e) of the Air Commerce Act of 1926." This change in language is necessary in order to make reference to authorizations contained in the above-mentioned Act.

The language of the paragraph has been further amended by inserting after the words "with the companies performing the service;" the following new proviso: "Provided, That the Secretary of Agriculture is authorized to terminate by agreement certain existing contracts in order that the rates may be made uniform for all companies performing similar service."

The First Deficiency Act for the Fiscal Year 1926 appropriated \$168,312 for increased telegraph rates, to adjust prior rates in effect for a long period of years which had become inequitable with the advance of all labor and materials costs in this country. It was expected, as a matter of course, that this deficiency appropriation would be employed for the payment of tolls on all similar telegraph service without discrimination to any carrier. Owing, however, to the fact that whereas the Western Union Telegraph Company was, prior to July 1, 1926, operating under an informal agreement, thus enabling the Department to grant the new rates immediately to that Company, the Postal Telegraph-Cable Company and several other minor companies were performing services under formal contracts executed in previous years that contained provisions for annual renewals at the option of the Secretary of Agriculture without any final expiration date whatever, in other words, in perpetuity. Although the inequity of such contracts was apparent, the Department was constrained from terminating them by a decision of the Comptroller General to the Secretary of Agriculture, dated July 22, 1926, (A-14771), which, in brief, held that the Secretary was without authority to take this action.

The proposed new language is to secure to the Secretary of Agriculture the necessary authority to allow him to carry out the evident intention of Congress to grant just compensation for service rendered without discrimination to any carrier because of legal technicality. It is not necessary, nor intended, that this proviso be continued as permanent language in Appropriation Acts subsequent to that of 1928.

(c) EXPENSES IN WASHINGTON

Appropriation, 1927	\$158,500
Budget, 1928	158,500

Work Done Under Appropriation.

This item provides for the payment of salaries to employees in Washington engaged upon the scientific meteorological, climatological, river and flood, marine and solar radiation work of the Bureau. It also covers the cost of telegraphing forecasts and special messages chargeable to the central office at Washington, D.C.: as well as the maintenance of the central office of the Weather Bureau, including, in addition to usual office supplies and equipment, the repair and upkeep of buildings and the purchase of apparatus, instrumental parts, laboratory supplies and equipment.

(d) PRINTING OFFICE.

Appropriation, 1927	\$10,000
Budget, 1928	10,000

Work Done Under Appropriation

This appropriation provides for the maintenance and operation of a field printing plant at Washington, D. C., required to enable the Bureau to function efficiently, under the necessity of issuing prompt warnings and advices to agricultural, commercial, and maritime interests as well as the general public.

(e) EXPENSES OUTSIDE OF WASHINGTON

Appropriation, 1927 ...	\$1,787,073
Budget, 1928	<u>1,744,000</u>
Decrease	43,073

The elements entering into the indicated decrease of \$43,073 are as follows:

(1) A decrease of \$38,000 made possible by the completion of the project contained in the Act of March 2, 1925 which authorized the erection of a Weather Bureau building on the campus of the Michigan Agricultural College at East Lansing, Michigan.

(2) An actual decrease of \$5,073 in working funds which will be met by effecting economies in operation.

Change in Language

The language of this paragraph has been amended by omitting the following proviso at the end thereof: "Provided, That not to exceed \$38,000 of this amount shall be immediately available for the erection of a building at East Lansing, Michigan, for the use of the Weather Bureau, as authorized by the Act of Congress approved March 2, 1925."

Work Done Under Appropriation

Under this item provision is made for the maintenance of the field stations of the Weather Bureau 203 regular stations, i.e., stations manned by commissioned personnel, and 1,847 substations, the observers at which are paid wages ranging from 25 cents per observation to \$40 a month. The appropriation covers the salaries and wages of these observers, the cost of telegraphing observations and forecasts, the rental of 78 office quarters, and the repairs and upkeep of Weather Bureau observatories and equipment at 42 places, in addition to other more usual objects of expenditure required to maintain a large number of field headquarters.

(f) HORTICULTURAL PROTECTION.

Appropriation, 1927 ...	\$27,500
Budget, 1928	27,500

Work Done Under Appropriation

This appropriation is used exclusively for field activities in the investigational, observational, and forecast work in the protection of horticulture. The work is in the main for the benefit of local horticultural interests, principally in California, Washington, Oregon and New York, and in this respect differs from that conducted under other appropriations of the Weather Bureau, which serve special interests only as an incident to general public service. The employees paid from this appropriation travel almost continuously during certain periods of the year and by means of intensive observational and forecast work enable fruit growers and others to protect their fruit cultures from frost by means of smudges, to conduct extensive spraying of trees at a propitious time, and to harvest crops with the least danger of loss as a result of adverse meteorological conditions.

(g) TRAVEL EXPENSES.

Appropriation, 1927,	
(including deficiency \$3,250) ..	\$31,900
Budget, 1928	33,000
Increase	1,100

There is an increase of \$1,100 in this item, taking into consideration the additional allotment of \$3,250 made for the fiscal year 1927 for necessary travel expenses in establishing stations and transferring personnel under the supplemental appropriation of \$75,000 provided by the Deficiency Act of July 3, 1926. This additional amount of \$1100 is required to provide for the increased subsistence rates authorized by Congress in the "Subsistence Expense Act of 1926", and is particularly urgent and necessary in the Weather Bureau because of the limited amount available to the Bureau in this separate subappropriation item for travel.

Work Done Under Appropriation.

This appropriation bears the cost of all travel performed by the Weather Bureau in fruit frost work, telegraph line inspection, transfers of personnel between stations, inspection of substations, harvest and fire weather service, storm and hurricane service, and general administrative work.

(h) INVESTIGATION OF ATMOSPHERIC PHENOMENA.

Appropriation, 1927 (including deficiency \$71,750)	\$176,150
Budget, 1928.....	175,000
Decrease.....	1,150

There is a decrease of \$1,150 in this item, taking into consideration the additional allotment of \$71,750 made for the fiscal year 1927 for furnishing a meteorological service to promote the safety and efficiency of air navigation under the supplemental appropriation of \$75,000 provided by the Deficiency Act of July 3, 1926.

Work Done Under Appropriation.

These funds provide for activities both in the field and at Washington, D. C., in connection with the protection of air navigation and the aid of general forecasting by means of the study and observations of the upper air. The work in the field is conducted by means of kite flights and theodolite observations on free balloons. Self-recording instruments on the kites give a record of temperature, pressure, humidity, wind velocity, and other meteorological data. Observations on free balloon show the velocity and depth of air currents. Administration of this project is by personnel in Washington where, in addition, much of the reduction and computation of data is also performed.

BUREAU OF ANIMAL INDUSTRY

(a) SALARIES.

Appropriation, 1927.....	\$641,000
Budget, 1928.....	630,000
Decrease.....	11,000

Work Done Under Appropriation.

This item provides for the salaries of clerks and laborers in Washington and in the field.

(b) INTRODUCTORY PARAGRAPH, BUREAU OF ANIMAL INDUSTRY.

Change in Language.

The language of the introductory paragraph has been amended by inserting in the last clause thereof after the words "exposed animals" the words "including poultry" and after the word "tuberculosis" the words "contagious poultry diseases." These changes are made for the purpose of removing any doubt as to whether or not the word "animals" legally includes poultry.

(c) INSPECTION AND QUARANTINE.

Appropriation, 1927...	\$630,000
Budget, 1928.....	640,000
Increase.....	10,000

The increase of \$10,000 involves the following projects:

(1) \$5,000 for inspection of animals for importation at Mexican border ports. The recent outbreak of foot-and-mouth disease in southern Mexico, which the Mexican authorities have not succeeded in eradicating, is a menace to the livestock interests of the southwestern States and is causing grave apprehension to the stockmen of those States. The force of employees on duty at Mexican border ports is inadequate to exercise the close supervision over livestock imported from that country that is necessary if our livestock owners are to be afforded the protection to which they are entitled. It is proposed to use \$5,000 of the requested increase to strengthen the inspection service at such border ports sufficiently to meet the emergency.

(2) \$5,000 to insure the proper enforcement of new regulations promulgated July 1, 1926, governing the importation of fertilizers and bags, with a view to guarding more effectively against the introduction of dangerous foreign animal maladies, such as foot-and-mouth disease and rinderpest. The outbreak of foot-and-mouth disease in Mexico has made it necessary to exercise closer supervision than heretofore over animal by-products and other commodities imported from that country. The enforcement of these regulations has caused a greater increase in the work at coast ports than was anticipated. Importers have complained of great delay through lack of available inspectors to pass on entries and supervise disinfection or other treatment of previously used bagging and other materials. The amount estimated is absolutely necessary to

insure the proper enforcement of these regulations and prompt service to American importers of such commodities.

Work Done Under Appropriation

Work under this head includes the eradication of scabies in sheep and cattle, the States most heavily infected with sheep scabies being Arizona, New Mexico, Wyoming, California, Texas, Colorado, South Dakota, Oregon, and Nebraska, and those chiefly involved with cattle scabies being Nebraska, Texas, Montana, South Dakota, Colorado, Kansas, Wyoming and New Mexico; the supervision of interstate transportation of livestock at stockyards, involving the inspection of millions of animals, dipping where necessary, and the cleaning of thousands of cars; and the inspection of animals offered for import, maintenance of quarantine stations, supervision of importation of hides, hay, straw, etc., inspection of animals for export, and of vessels carrying such animals, and enforcement of the 28-hour law.

(d) ERADICATION OF TUBERCULOSIS.

Appropriation, 1927...	\$4,653,000
Budget, 1928.....	<u>5,000,000</u>
Increase.....	347,000

The increase of \$347,000 will be used for the payment of indemnities for tuberculosis-infected cattle destroyed. The progress being made in the eradication of tuberculosis in the various States is far greater now than at any other period since cooperative work was inaugurated. Federal funds available for indemnities during the fiscal year 1927 will apparently be exhausted in many States by April 1, 1927. In January, 1927, the legislatures of approximately 40 States will convene and in all probability the combined appropriations made by these States for this purpose will be much greater than the amount now available, so that Federal funds will be used up more rapidly than at present.

During the past year some serious interruptions in the work occurred through lack of sufficient funds for Federal indemnity. The great need for increased funds is largely due to the fact that many cities and towns are requiring that all milk distributed in them shall come from cows that have passed the tuberculin test. The heaviest infection of bovine tuberculosis is found in localities where cattle owners are in the dairy business and supply milk for city use.

There are 756 counties engaged in cooperative tuberculosis eradication work under the area plan. This is 24.6 per cent of all the counties and in them are approximately 35 per cent of all the cattle in the United States. The purpose of this work is to eradicate bovine tuberculosis and keep counties free from the disease. The work will undoubtedly spread to many more counties in the immediate future. The results already obtained indicate that this disease can be eradicated from a single herd of cattle or from all the herds in a given area.

Changes in Language.

The language of the paragraph has been amended to cover two matters of major importance, namely, (1) the disease of paratuberculosis, and (2) the payment of indemnity for animals, which, after having been condemned and appraised have died from natural or other causes. Including these amendments, together with appropriate changes in grammar, the paragraph will read as follows:

"For investigating the diseases of tuberculosis and paratuberculosis of animals, for their control and eradication, for the tuberculin testing of animals, and for researches concerning the causes of the diseases, their modes of spread, and methods of treatment and prevention, including demonstrations, the formation of organizations, and such other means as may be necessary, either independently or in cooperation with farmers, associations, or State, Territory, or county authorities \$5,000,000, of which \$975,000 shall be set aside, for administrative and operating expenses and \$4,025,000 for the payment of indemnities: Provided, however, That in carrying out the purpose of this appropriation, if in the opinion of the Secretary of Agriculture it shall be necessary to condemn and destroy tuberculous or paratuberculous animals, he may, if such animals have been condemned, in his discretion, and in accordance with such rules and regulations as he may prescribe, expend in the City of Washington or elsewhere, such sums as he shall determine to be necessary, within the limitations above provided, for the payment of indemnities, for the reimbursement of owners of such animals, in cooperation with such States, Territories, counties, or municipalities, as shall by law or by suitable action in keeping with its authority in the matter, and by rules and regulations adopted and enforced in pursuance thereof, provide inspection of tuberculous or paratuberculous animals and for compensation to owners of animals so condemned, but no part of the money hereby appropriated shall be used in compensating owners of such animals except in cooperation with and supplementary to payments to be made by State, Territory, county, or municipality where condemnation of such animals shall take place, nor shall any payment be made hereunder as compensation for or on account of any such animal if at the time of inspection or test, or at the time of condemnation thereof, it shall belong to or be upon the premises of any person, firm, or corporation, to which it has been sold, shipped, or delivered for the purpose of being slaughtered: Provided further, That out of the money hereby appropriated no payment as compensation for any animal condemned for slaughter shall exceed one-third of the difference between the appraised value of such animal and the value of the salvage thereof; that no payment hereunder shall exceed the amount paid or to be paid by the State, Territory, county, and municipality, where the animal shall be condemned; that in no case shall any payment hereunder be more than \$25 for any grade animal or more than \$50 for any purebred animal; and that no payment shall be made unless the owner has complied with all lawful quarantine regulations."

Paratuberculosis, a disease which stimulates intestinal tuberculosis of cattle, has been reported from four or five states. It is desired immediately to start eradication before the disease becomes firmly implanted.

With reference to the payment of indemnity for animals, which, after having been condemned and appraised have died from natural or other causes, the Comptroller General has declined to allow the claims of owners for indemnity in such instances for the reason that the Government has not "destroyed" the cattle within the meaning of the provision making the appropriation. Inasmuch as the animals in such cases which have reacted to the tuberculin test have been condemned, appraised, and surrendered by the owners in good faith, it is believed that language should be included to permit the payment of indemnity therefor.

Work Done Under Appropriation.

The object of this work is to arrest the spread of tuberculosis among livestock through campaigns for the control and eradication of this disease, in cooperation with State agencies. This appropriation represents the contribution of the Federal Government in the shape of indemnities for animals slaughtered and in the general supervision of the work. The movement was started as a Federal-aid proposition, and the States look to the Federal Government for leadership. Contributions by the States towards the prosecution of the eradication campaigns amount to approximately \$11,000,000 per annum. The amount set aside for operating expenses is used for the salaries of veterinarians, travel expenses, maintenance of office forces in each State, and miscellaneous administrative expenses.

(c) ERADICATING CATTLE TICKS.

Appropriation, 1927...	\$699,450
Budget, 1928.....	675,000
Decrease.....	24,450

Work Done Under Appropriation

This appropriation is used cooperatively for the payment of salaries and travel and office expenses of veterinarians and agents in Virginia, North Carolina, South Carolina, Georgia, Alabama, Oklahoma, Florida, Mississippi, Louisiana, Arkansas, and Texas, engaged in the eradication of the southern cattle tick, which spreads splenic fever among cattle. As counties are cleared up they are released from Federal Quarantine, and their livestock may then be shipped north without restriction. The States generally are contributing larger sums to this work than the appropriations provided by the Federal Government. The work is done under State law and regulation, Federal money being expended for supervision, to insure that all measures of eradication are so carried out as to warrant the release of cleaned areas from quarantine.

(f) ANIMAL HUSBANDRY INVESTIGATIONS

Appropriation, 1927	\$350,080
Budget, 1928.....	365,000
Increase.....	14,920

The increase of \$14,920 in this item will be used for the purchase and installation of pumps and filters for the water supply at the United States range livestock experiment station, Miles City, Montana. It is imperative that an adequate water system be installed at the earliest possible date. At present there is constant danger to the health of employees at the station due to the use of water directly from the Yellowstone River. The Yellowstone is a notoriously muddy river and the stage of flow fluctuates greatly during the year which causes an insanitary condition of the water due to the carrying away during the flood stages of carcasses of livestock and other filth which collects on the river banks during the dry seasons. The bacteria count has been found to be above the safety number. Sickness during the fall months of last year was attributed to this cause. In addition to the urgent need of filtered water for human consumption there must be supplied quantities of water for the livestock. Equipment with sufficient power to furnish protection against fire is greatly needed. A temporary arrangement consisting of a tractor or motor for pumping water to a small tank provides the present water supply. This pump is not capable of putting water into the large metal tank on a 75-foot tower which is standing idle. In case of fire or a prolonged dry period, not only the livestock at the station would suffer but buildings valued at more than \$200,000 would be in danger of destruction. The tracks of the Northern Pacific Railway Company pass within a short distance of these buildings which, without a satisfactory water supply, is a constant fire hazard.

Work Done Under Appropriation.

Activities under this paragraph include: (1) studies of problems in sheep and goat production, breeding and management. The work is done principally at Beltsville, Md., Middlebury, Vt., McNeill, Miss., Newell, S. D., and at the sheep station in Idaho. Laboratory studies on wool are also under way. (2) Studies of problems relating to cost of production, grazing, feeding, wintering, fattening, and breeding of beef cattle are conducted in West Virginia, Texas, and several other States. (3) Swine feeding and breeding investigations are also carried on under this appropriation. (4) Poultry studies under way, chiefly at Beltsville, include work on inbreeding, the influence of thyroid in the ration on feather growth as connected with molt; on inheritance of egg production and egg hatchability, egg shape as a determining factor in sex, and value of vegetable proteins as food for poultry as contrasted with proteins from animal sources in relation to improved egg production. (5) Other work under this item includes studies of horse breeding, feeding and management, chiefly at Middlebury, Vt., and in Wyoming, genetic and nutrition research, and meat investigations. A large part of the field experiments are performed at the animal husbandry farm at Beltsville, Md.

(g) DISEASES OF ANIMALS.

Appropriation, 1927.....	\$125,860
Budget, 1928.....	125,860

Work Done Under Appropriation.

The general investigational work relating to animal diseases is done under this appropriation. Some of the more important problems now being studied, are contagious abortion, including field and laboratory work at

Bethesda, Md., and in Washington: stock poisoning by plants, including summer studies in the Rocky Mountain region and laboratory work in Washington; round worms and other intestinal parasites of sheep at McNeill, Miss.; internal parasites of hogs, and the development of the McLean County, Ill. system of sanitation at Moultrie, Ga.; studies of anthelmintics and mange mites; miscellaneous pathological and biological studies. The pathological experiment station at Bethesda, Md., is also maintained under this item.

(h) ERADICATING HOG CHOLERA.

Appropriation, 1927.....	\$428,263
Budget, 1928.....	425,000
Decrease.....	3,263

Work Done Under Appropriation.

Hog cholera control work is now carried on cooperatively with 32 States. Since this activity started losses from cholera have steadily fallen until at the beginning of the outbreak this fall they were smaller than ever before. In carrying out the control work, Bureau of Animal Industry veterinarians are stationed in cooperating States who investigate reported outbreaks, make autopsies to diagnose the disease, hold demonstrations of the serum treatment, train laymen to administer this treatment in sections where there are no veterinarians, give advice on disinfection, and address meetings of farmers on the subject of hog cholera and its control; in short, keep in close touch with conditions and render expert aid on the spot.

This item also provides for the enforcement of the Virus-Serum Toxin Act. This work requires the inspection in 60 cities of 91 establishments producing anti-hog cholera serum, hog cholera virus, aggressins, bacterins, vaccines, etc. All animals offered are closely inspected, and all operations supervised to insure the production of effective protective remedies.

Hog-cholera research work, which resulted in the discovery of the serum now used to combat cholera, is now directed to perfect the method of immunization, first by cheapening it, and second by obviating failures that now occur at certain times.

(i) ERADICATING DOURINE

Appropriation, 1927.....	\$30,000
Budget, 1928.....	25,000
Decrease.....	5,000

Work Done Under Appropriation.

Dourine, a syphillitic disease of horses, is found now in Arizona and South Dakota, almost entirely on the Indian reservations. In combating the disease the Office of Indian Affairs takes samples of blood of suspected horses, and these samples are sent to the laboratories of the Bureau of Animal Industry for testing. The results of such tests are reported back to the Indian Office, and horses which show presence of the disease are slaughtered, and the owners indemnified by the Indian Office. The Bureau of Animal Industry also investigates reported cases of dourine outside of the Indian reservations.

(j) ADMINISTRATIVE EXPENSES.

Appropriation, 1927.....\$24,000
 Budget, 1928..... 24,000

Work Done Under Appropriation.

This item provides for the general overhead expenses of the bureau which can not conveniently be charged against other general expense funds, such as general administrative travel, editorial work, telegraph and telephone charges, etc.

(k) MEAT INSPECTION.

Appropriation, 1927.....\$1,896,110
 Budget, 1928..... 1,896,110

Work Done Under Appropriation

This fund, together with a permanent annual appropriation of \$3,000,000 is used for the purpose of enforcing the provisions of the Meat Inspection Act. This law requires that all meat or meat food products transported interstate or abroad be inspected by the Federal Government. It insures wholesome meat foods to our own people and serves to promote the disposition of the surplus abroad, as foreign countries accept our meats only when properly inspected and passed. Inspection now covers 910 establishments, that is, all plants in the United States slaughtered animals or preparing products for interstate or foreign movement. The plants are inspected for sanitation, the animals are examined before and after slaughter, and all processing is supervised and all carcasses or parts and all products found unfit for human food are condemned.

Limitation on Personal Service in the District of Columbia.Change in Language.

The language of the limitation on personal service in the District of Columbia has been changed by inserting the word "departmental" before the word "personal". This change is necessary in order to permit the employment of field service employees in the District of Columbia when required in conducting the field activities of the bureau.

Note:- In connection with the Bureau of Animal Industry, also see "Miscellaneous Items" for "Experiments in Livestock Production in Southern United States", (page); "Experiments in Dairying and Livestock Production in Western United States", which work is divided between the Bureau of Animal Industry, and the Bureau of Dairy Industry, (page); and "Eradication of Foot-and-Mouth and Other Contagious Diseases of Animals", (page).

(a) SALARIES.

Appropriation, 1927	\$74,250
Budget, 1928	74,250

Work Done Under Appropriation.

This appropriation is used exclusively for the payment of salaries of clerks, laborers, and messengers engaged in the administrative or business activities of the Bureaus, and the salaries of clerical employees assigned to the various investigational projects of the Bureau.

(b) GENERAL EXPENSES.

Appropriation, 1927	\$408,544
Budget, 1928	<u>430,244</u>
Increase	21,700

The increase of \$21,700 in this item will be used for the following purposes: (1) \$3,400 for dairy cattle breeding; (2) \$4,200 for investigations in the manufacture of ice cream; (3) \$2,240 for condensed milk and milk powder investigations; (4) \$2,400 for investigations in the bacteriology and chemistry of milk; (5) \$1,860 for investigations of the nutrition of dairy cows, and (6) \$7,600 for the construction of a manure shed at the Beltsville, Maryland, dairy experiment station.

Change in Language.

The language of this paragraph has been amended by inserting "and not to exceed \$7,600 for construction of buildings," after the word "buildings", to provide authority for the construction of a manure shed at the Beltsville, Maryland, dairy experiment farm.

Work Done Under Appropriation.

Under this appropriation scientific investigations of the fundamentals of dairying are conducted. These investigations embrace (a) the breeding, nutrition, and management of dairy cattle, with a view to increasing the average milk and butterfat production of dairy cows through the application of scientific and economical methods; (a) market milk investigations involving research in sanitary methods for improving city milk supplies, studies of the relative efficiency of different types of dairy machinery, the relative efficiency and economy of various methods of sterilizing dairy utensils on the farm and in milk plants, efficiency of milk plant operation, transportation of milk, and studies of factors affecting the commercial value of milk and cream, such as the effect of various feeds on the flavor and odor of milk; viscosity of cream, foaming of milk, etc.; (c) laboratory investigations of problems concerned in the manufacture and utilization of dairy products and by-products, such, for instance, as the manufacture of Swiss and other so-called foreign cheeses, investigations of the bacteriological and chemical problems of milk, as grading milk for manufacturing purposes, the taxonomy and physiology of the casein digesting

bacteria of milk, and factors which affect the lactic acid fermentation, condensing and evaporating investigations to ascertain the causes of coagulation of evaporated milk in sterilization, manufacture of milk powders, including a new method by which the susceptibility of fats to oxidation may be automatically measured, the improvement of the keeping quality of milk powder, the effective utilization of skim milk through the manufacture of poultry feeds, and discovery of processes for the manufacture of other by-products such as the separation of the protein from whey in soluble form in order to obtain a powder which may be used as a substitute for dried egg whites used in various products by confectioners, and investigations of bacteriological and other problems in the manufacture of ice cream; and (d) investigations of dairy manufacturing problems on a commercial scale, the introduction into new territories of improved processes for the manufacture of butter, cheese, and other dairy products and by-products; investigations of methods for increasing milk and butterfat production of dairy cattle through cow-testing and bull associations; the introduction of such methods as are found most efficient; demonstrations for increasing the use of milk and milk products in the diet; inspection of renovated butter factories, and the supervision of the packing of butter for the United States Navy.

(c) FIELD STATION, WOODWARD, OKLA.

Appropriation, 1927	\$12,300
Budget, 1928	12,300

Work Done Under Appropriation.

The dairy work at this station was inaugurated in 1921 for the purpose of demonstrating proper and economical methods of dairying under local conditions, with particular reference to a determination of the suitability of the local feeds and grasses for dairy cattle feeding. Investigations in the breeding of dairy cattle are also being conducted as an adjunct to similar investigations carried on by the Bureau at the Huntley, Montana, and Beltsville, Maryland, dairy experiment stations. The primary purpose of these investigations is to establish a uniformly high-producing strain of cattle by the continuous use of bulls of proved transmitting ability.

Note:- In connection with the Bureau of Dairy Industry, also see "Miscellaneous Items" for "Experiments in Dairying and Livestock Production in Western United States", which work is divided between the Bureau of Animal Industry and the Bureau of Dairy Industry, (page), and "Dairying and Livestock Experiment Station, Mandan, North Dakota", (page 101).

BUREAU OF PLANT INDUSTRY.

(a) SALARIES.

Appropriation, 1927.....	\$563,900
Budget, 1928.....	<u>558,000</u>
Decrease.....	5,900

The totals shown for 1927 and 1928 are exclusive of \$11,100 to be transferred to the Bureau of Chemistry and Soils in connection with the proposed consolidation of all the research work of the Department in chemistry and soils in one bureau.

Work Done Under Appropriation

The item for salaries is distributed throughout the offices of the Bureau of Plant Industry, supplementing the funds carried in specific General Expenses appropriations.

(b) PATHOLOGICAL LABORATORY

Appropriation, 1927.....	\$90,000
Budget, 1928.....	<u>89,000</u>
Decrease.....	1,000

Work Done Under Appropriation.

The problem dealt with in this laboratory involve laboratory, greenhouse, and field experiments with bacterial and fungous diseases, and the various crops studied include wheat, oats, millets and other cereals, sorghum, beans, soybeans, peas, tobacco, tomato, potato, cantaloupe, and other truck crops; also a variety of diseases of florists, field, and hothouse stock, including geranium, gladiolus, and other bulb plants, delphinium, asters, snapdragon, begonia and many other garden plants grown for commercial purpose or in private gardens.

The Plant Disease Survey project covers the study and recording of the geographical distribution, prevalence, and rate of spread of plant diseases in the United States, and estimates of losses caused by plant diseases. It records the appearance of new or dangerous diseases in order that restrictive measures may be devised, and studies epidemics or unusual outbreaks of disease to obtain more information concerning the factors determining their development, spread, and control.

The Pathological Collections project covers the collection, preservation, and identification of all plant parasites and other fungi having relation to injury or destruction of economic plants and plant products, and the identification of all specimens of plant parasites submitted by the different pathological offices and the experiment stations.

(c) FRUIT DISEASES.

Appropriation, 1927....\$135,325
 Budget, 1928..... 135,325

Work Done Under Appropriation

The work under the paragraph includes the investigation of disease of fruits and fruit trees, including citrus and subtropical fruits, grapes, and small fruits, the fruit rots and decays, and the diseases of the pecan and other nut diseases. Experiments are conducted on a large scale in the control of fruit diseases by spraying, by disinfection, by eradication, and by other methods.

(d) CITRUS CANCER

Appropriation, 1927.....\$48,630
 Budget, 1928..... 45,000
 Decrease..... 3,630

Work Done Under Appropriation

The Bureau of Plant Industry, in cooperation with the Gulf States, is conducting a campaign for the eradication of citrus canker, a bacterial disease of citrus fruits and trees, by the thorough inspection of nurseries and citrus groves, formalin treatment of infected soil, protective spraying of groves exposed to infection, and destruction of diseased trees. As a result of the vigorous campaign, the disease has been practically eliminated, but scattered infections still occur sporadically.

(e) FOREST PATHOLOGY

Appropriation, 1927.....\$108,095
 Budget, 1928..... 120,000
 Increase..... 11,905

The increase of \$11,905 will be needed for investigations of blight resistant chestnuts. Because of the increasing scarcity of chestnut forest products, a critical situation is rapidly approaching in the American tanning industry. The chestnut forests provide one half of the tanning materials commercially available within the United States. With the steadily advancing destruction from chestnut blight, it is estimated that the stands of chestnut will all be dead or seriously affected within the next fifteen years.

Work Done Under Appropriation.

The work done under this paragraph consists of investigations of such diseases of forest and shade trees as are of serious economic importance, with a view to the control of these diseases. Examples of diseases under investigation are the white pine blister rust, the chestnut blight, the heart-rot of Douglas fir, and of many other tree diseases.

(f) WHITE PINE BLISTER RUST CONTROL

Appropriation, 1927.....\$368,280.
 Budget, 1928..... 368,280.

Work Done Under Appropriation

Under this project cooperative programs are conducted for the suppression and control of white pine blister rust. Control programs in the eastern and western United States are being prosecuted jointly by the Department and the responsible State agencies in the affected States.

(g) COTTON AND TRUCK DISEASES.

Appropriation, 1927.....\$139,450
 Budget, 1928..... 139,450

Work Done Under Appropriation

Investigations are carried on dealing with diseases affecting potatoes, vegetables, forage, and other crops, including incidental work on cotton and ornamentals, to determine their cause, the conditions of temperature, humidity, etc., under which they develop, the localities where they are most serious, the losses incurred, the methods of disease transmission from plant to plant and field to field, the means of over-wintering, and, finally, to develop control measures for the various troubles. Investigations are also carried on in cooperation with the Bureau of Agricultural Economics in connection with the transit, marketing, and storage of vegetables, to determine the cause of the troubles encountered, and whether they originate in the field or after shipment.

(h) CROP PHYSIOLOGY.

Appropriation, 1927.....\$72,000
 Budget, 1928..... 72,000

Work Done Under Appropriation

The following work is conducted hereunder: Citrus breeding, undertaken primarily to secure new oranges, lemons, and similar fruits equal in quality to the standard sorts now grown commercially in the United States, but possessing a greater degree of resistance to cold and disease; date culture and breeding, with the object of establishing commercial date culture in the United States; incidental breeding work on dates to create new varieties especially suited to American conditions; and Smyrna fig culture and breeding work.

(i) PLANT NUTRITION.

Appropriation, 1927.... \$16,780
 Budget, 1928..... 16,780

The totals shown for 1927 and 1928 are exclusive of \$33,940 for "Soil Bacteriology" which work is to be transferred to the Bureau of Chemistry and Soils in connection with the consolidation of the Department's research work in chemistry and soils in one bureau. The remaining \$16,780 will be retained in the Bureau of Plant Industry for plant nutrition investigations.

Change in Language.

The language of this item has been changed by eliminating therefrom everything except the work: "For plant nutrition investigations."

Work Done Under Appropriation.

Experiments with pure cultures of legume bacteria are carried on throughout the United States. Commercial cultures for legume inoculation are inspected for the purpose of determining those of inferior quality.

(j) SOIL FERTILITY.

This item is being transferred to the Bureau of Chemistry and Soils in connection with the proposed consolidation of the Department's research work on chemistry and soils in one bureau.

(k) CROP ACCLIMATIZATION.

Appropriation, 1927.....\$194,920
 Budget, 1928..... 194,920

Work Done Under Appropriation

The work of the Office of Crop Acclimatization is directed chiefly to acclimatization and adaptation in the Southern and Southwestern United States of varieties of cotton, corn, and other crop plants of tropical origin; the breeding of superior varieties of cotton and the improvement of cotton culture methods under boll-weevil conditions; and investigations of rubber-producing possibilities in the United States, Philippine Islands, West Indies, Canal Zone, and elsewhere in tropical America.

Work in hard fiber production is carried on in the Philippine Islands and Porto Rico, flax in Michigan and Oregon, and hemp in Wisconsin and Kentucky.

(1) DRUG AND OTHER PLANTS.

Appropriation, 1927.....	\$46,412
Budget, 1928.....	45,000
Decrease.....	1,412

Work Done Under Appropriation

Scientific studies are made of the methods of producing, drying, and preserving crude botanical drug crops which may be grown in this country. Pioneer work is being done in introducing to American agriculture oil seed crops such as safflower, hemp, and perilla, the oils from which are a satisfactory supplement to linseed oil. Work is also in progress on the introduction and establishment of essential oil crops, the products from which are extensively used by the manufacturers of perfumes and medicinal preparations. The successful introduction of the Japanese mint plant, from which the commercial supply of menthol is obtained, is a conspicuous example. Another phase of the work is the chemical examination of the wastes which result from packing, canning, or otherwise preparing plant products many of which have been found to contain fixed oils which can be recovered at relatively small cost.

Botanical surveys are made on grazing areas where poisonous plants cause losses of livestock. Suspected plants are collected and identified and descriptions are prepared and published as an aid to stockmen and farmers in recognizing poisonous plants and in avoiding areas in which they occur. Plants suspected of being poisonous are examined by established biochemical methods and, if found to be toxic, the physiologically active principles are identified and their distribution in the various parts of the plants determined. Studies of these plants are made in the field to ascertain the conditions under which poisoning is most likely to occur, the stage of growth in which each species is most poisonous, and the means by which they may be eradicated.

Investigations are carried on of plant geography and crop distribution and their relation to climatic and soil conditions, and studies are made of the important problems in plant production from a geographical point of view. Definite investigations are under way throughout the United States to determine the different types of vegetation and interpret them in terms of crop production, as well as intensive studies of the relations of native and crop plants to condition of soil and climate in the various sections of the country as a sound basis for the interpretation of the data on distribution. These studies assist and supplement other important work of the Federal service by offering a physical basis for the development of our agriculture, for land classification, and the future use of land, contribute to the value of soil types, and aid in the classification of homestead lands and in regional geographic studies.

(m) CROP TECHNOLOGY

Appropriation, 1927....	\$49,420
Budget, 1928.....	49,420

Work Done Under Appropriation

These investigations deal primarily with the study of minute eelworms or nemas, certain species of which infest the roots of important crop plants and seriously injure them. Some species of nemas are found to be beneficial, destroying insects or other species of injurious nemas.

(n) SEED TESTING LABORATORIES.

Appropriation, 1927....\$57,298
Budget, 1928..... 57,298

Work Done Under Appropriation

Samples of seeds submitted by farmers, seedsmen, and others are tested to determine the proportion of pure seeds present, the kinds and proportion of weed seeds present, and the germination of the pure seed. In enforcing the Seed Importation Act, samples of all shipments of seeds subject to the act are drawn by customs officials at the time of entry. These samples are examined to determine whether or not they comply with the requirements of the Seed Importation Act. Each year collaborators are appointed who collect from seed dealers samples of various commercial seeds. These are examined for the presence of adulterations, and purchases based on these samples are made through the collaborators. The analyses of the purchase lots which are found to be adulterated or misbranded, together with the names of the dealers from whom purchased, are published. This form of publicity has eliminated in a large way the sale of adulterated or misbranded forage crop seeds in the United States.

(o) CEREAL INVESTIGATIONS.

Appropriation, 1927....\$699,340
Budget, 1928..... 670,000
Decrease..... 29,340

Work Done Under Appropriation

Cereal investigations cover methods of production, methods of improvement, and methods of control of the diseases of wheat, rye, emmer, spelt, oats, barley, rice, corn, grain sorghums, broomcorn, proso millet, seed flax, and buckwheat; also the eradication of the common barberry in the wheat belt of the Middle West. The common barberry is an intermediate host of the wheat rust, and by the removal of the barberry, the control of wheat rust in the area covered is expected to be accomplished.

(p) TOBACCO INVESTIGATIONS.

Appropriation, 1927.....\$53,220
Budget, 1928..... 53,220

Work Done Under Appropriation.

Tobacco investigations include all phases of growing, curing, and handling tobacco, with the exception of tobacco insects and their control. The work consists of observations on the growing plant and technical examination of leaf tobacco produced under specially controlled conditions. The aim is to determine the relation of the chemical composition to the quality of leaf tobacco, the causes of poor burning qualities, relation of the nutrition of the plant to the aroma, color, and other important characteristics, factors controlling the nicotine content, the causes of parasitic and nutritional diseases, the specific effects of each of the nutrient elements on the development of the plant, and the nature of the processes of ripening, curing, and fermentation.

(q) ALKALI AND DROUGHT RESISTANT CROPS.

Appropriation, 1927.....	\$22,193
Budget, 1928.....	22,000
Decrease.....	193

Work Done Under Appropriation

Under this appropriation studies are made to ascertain the adaptability of various crop plants to alkali soils and to soils having a limited water content and to determine the physiological effects of alkali and of drought upon the growth of plants. An important phase of the investigational work is the development of a type of long-staple cotton thoroughly adapted to irrigated land in Arizona and California.

(r) SUGAR PLANTS.

Appropriation, 1927.....	\$156,695
Budget, 1928.....	156,695

Work Done Under Appropriation

Projects under this head consists of a study of the diseases of sugar beet, sugar cane, and sorgo; collection of data on distribution of the diseases; by determination of the nature and amount of losses due to such diseases; laboratory investigations of the biological aspects of the diseases; and the application of control measures determined by field and laboratory experiments. Improvement of the desirable properties of sugar beet, sugar cane and sorgo, such as increased tonnage and sugar content, resistance to diseases and adaptability to new conditions, are brought about by foreign exploration for new varieties and breeding with stock so obtained.

(s) ECONOMIC AND SYSTEMATIC BOTANY

Appropriation, 1927.....	\$35,500
Budget, 1928.....	33,100
Decrease.....	2,400

Work Done Under Appropriation

The primary function of the Office of Botanical Investigations and Experiments is the identification of plants for the various bureaus and branches of the Department of Agriculture and for other organizations and individuals doing similar work. For this work of identification the office maintains an authentically named collection of cultivated plants, and for wild plants it uses the National Herbarium. The domestication and improvement of one of our wild fruits, the blueberry, has been undertaken. These investigations have developed the fact that many wild plants supposed to be difficult or impossible of cultivation can be grown readily if given the types of soil they require.

(t) DRY LAND AGRICULTURE.

Appropriation, 1927.....\$199,330
Budget, 1928..... 199,330

Work Done Under Appropriation

The Office of Dry Land Agriculture was organized in 1905 for the purpose of investigating the problems of the agricultural development of the Great Plains area. This area includes all of Montana, North and South Dakota, Nebraska, Wyoming, Colorado, Kansas, Oklahoma, Texas, and New Mexico lying between the 5,000-foot contour on the eastern slope of the Rocky Mountains and the 98th meridian of longitude. All this region is classed as semiarid. The normal annual precipitation ranges from as low as 10 inches to as high as 30 inches, by far the larger portion of it, however, having from 12 to 15 inches. The conservation of moisture is the all-important major problem of the agriculture of this entire region. This project can be subdivided into a very large number of minor problems, such as depth and manner of plowing, tillage after plowing for preparation of seed-bed, intertillage between rows during growth of rowed crops, alternate cropping, etc.

(u) WESTERN IRRIGATION AGRICULTURE.

Appropriation, 1927.....\$107,475
Budget, 1928..... 107,475

Work Done Under Appropriation

The object of this appropriation is to investigate agricultural conditions and determine by field studies and experiments the crops, rotations, and cropping methods best suited to successful farming in the arid and semiarid regions of the western United States and, in co-operation with the reclamation Bureau of the Department of the Interior and the various State experiment stations interested, to work out methods of improving these conditions.

(v) NUT CULTURE.

Appropriation, 1927....\$27,300
Budget, 1928..... 27,300

Work Done Under Appropriation

These investigations are devoted to a study of the important commercial nut crops of the United States, including almonds, walnuts, and filberts on the Pacific Coast, and pecans and other native nuts of the South and the Eastern part of the United States. Special studies are being conducted in connection with almonds and walnuts in California and pecans in the South Atlantic and Gulf States.

(w) POMOLOGICAL INVESTIGATIONS

Appropriation, 1927.....\$159,000
Budget, 1928..... 159,000

Work Done Under Appropriation

The work includes investigations of the production of grapes, deciduous small fruits, citrus and other orchard fruits and their improvement by breeding or by methods of culture, together with investigations upon improvements in utilization, either by canning, drying, or other forms of preservation, and the behavior of these fruits in transit and in storage. A portion of the transportation studies are carried on in cooperation with the Interstate Commerce Commission.

(x) EXPERIMENTAL GARDENS AND GROUNDS

Appropriation, 1927.....\$14,500
Budget, 1928..... 14,500

Work Done Under Appropriation

This appropriation provides for the maintenance of a range of thirty-two greenhouses, at which is carried on the following work: The inspection and fumigation of plants; the propagation of blueberries and evergreen shrubs; general hybridization work; seed testing; experimental work with citrus and other tropical fruits; propagation of plants for ornamenting the grounds of the Department and those of the Weather Bureau; the growing of a collection of grapevines for miscellaneous experimental work; experimental work with alfalfa, clover, cowpeas, and beans; experimental work with florists' crops, including roses, carnations, and chrysanthemums; producing and growing a collection of hybrid amaryllis bulbs; plant-breeding work; and pathological work of the Bureau of Plant Industry. The lighting of the grounds, as well as the work of removing the refuse from the Department buildings and maintaining the Department grounds in good condition, is also carried under this item.

(y) HORTICULTURAL INVESTIGATIONS

Appropriation, 1927...	\$88,000
Budget, 1928.....	<u>95,500</u>
Increase.....	7,500

The increase of \$7,500 in this item involves two projects as follows:

(1) \$2,500 for the investigation of the Jerusalem artichoke and other types. The Jerusalem artichoke, a native plant, has been extensively developed for human food purposes as well as stock food purposes in France. This crop is now attracting widespread interest, partly because of increasing use as a vegetable and partly because of recent announcements by the Bureau of Standards that methods of levulose extraction may be developed. Unfortunately the methods of cultivating, and especially of handling the artichoke after it has been produced, are not well understood in this country. It is therefore necessary if this crop is to be of value, as it now promises, for human food, for stock food and possibly for sugar production, that its cultivation and especially its handling, propagation and storing be thoroughly understood in order that extensive production can safely be undertaken. The \$5,000 requested is to supplement the work already under way and to enable its enlargement and extension. All known varieties of artichokes have been assembled, together with a number of wild forms. Those which are most promising for commercial production will be selected and the most satisfactory methods of handling them in the various sections of the United States worked out, in order that the crop may be more thoroughly understood and more intelligently handled by those who undertake it.

(2) \$5,000 for the extension of investigations in connection with the rapidly developing bulb industry in America, which is a direct outgrowth of the necessary transfer of narcissus production to American soil. The establishment of quarantines to prevent the introduction of dangerous pests and diseases directly affect the sources from which certain important items in the horticultural trade originate. This has been the case with the narcissus and some other bulbs. In order to determine the best methods of propagating, handling, curing and storing the bulbs as well as to fix the locations in which the industry can be most advantageously carried on, it is imperative that the Department assist those interested in the American bulb growing business to the fullest possible extent by developing safe and sanitary horticultural methods of procedure. The Department has been able materially to aid this industry but the limited funds available have prevented it from extending the work to regions highly important in the development of a safe and well rounded industry in the United States.

Work Done Under Appropriation.

Under this paragraph are conducted investigations on the production, handling, and breeding of potatoes and other truck crop and on the behavior of these perishable products, with especial reference to shrinkage and deterioration in storage and in transit. A portion

of the transportation studies are carried on in cooperation with the Interstate Commerce Commission.

(z) NURSERY STOCK INVESTIGATIONS

Appropriation, 1927.....\$20,000
Budget, 1928..... 20,000

Work Done Under Appropriation.

These funds are used for studies relating to the production and uses of fruit trees and ornamental stocks under American conditions, to provide the needs of American nurseries. The investigations include apple, pear, peach, plum, and citrus stocks propagated from seed, as well as through vegetative means.

(aa) ARLINGTON FARM.

Appropriation, 1927.....\$27,000
Budget, 1928..... 27,000

Work Done Under Appropriation

Arlington Farm is used for the maintenance of the facilities required to make the Farm a suitable field laboratory for the investigational units of the Department in Washington. These funds are used for repair to buildings, grain and forage for teams, replacement of animals and implements, maintenance of roads, grounds, and water supply; construction of drains, and maintenance of a supervising and operating force.

(bb) FOREIGN SEED AND PLANT INTRODUCTION

Appropriation, 1927.....\$143,000
Budget, 1928..... 143,000

Work Done Under Appropriation

Foreign agricultural exploration work for the purpose of assembling promising varieties of fruits, vegetables, or other plants for testing in different regions of the United States has been carried on in various parts of the world. At the present time explorers are collecting in China and Manchuria varieties of peaches, apples, and other fruits, rice, soybeans, and a wide range of other economic plants. Extensive correspondence is carried on with cooperators, botanic gardens, nurserymen, and others in all parts of the world for exchange of new plant material. The new varieties are held under quarantine observation for a sufficient period and later are distributed to cooperators, State experiment stations, and others able to carry on satisfactory tests.

(cc) FORAGE CROP INVESTIGATIONS.

Appropriation, 1927.....	\$98,000
Budget, 1928.....	<u>100,000</u>
Increase.....	2,000

There is an increase of \$2,000 in this item for field tests of alfalfa and red clover seed, which constitute the most important leguminous forage crops in the United States. In the northeastern, or clover belt section red clover is the foundation of all good systems of rotation, and alfalfa has proven to be almost an essential to the development of the dairy industry in the same section. As a result of such researches as the Department has been able to make, it has become evident that to a large degree the successful culture of these two crops depends on the use of seed of hardy strains or varieties. The use of unadapted seed leads to disaster. Heavy losses are experienced by farmers every year through use of non-adapted seed. This condition arises in part from the fact that our domestic production of red clover seed is not equal to the consumption and that the price of foreign alfalfa seed is much lower than that of American seed. These conditions have led to heavy importations of foreign seed to supply the demand. Since 1919 the average annual importation of red clover seed has been about 12,000,000 pounds and of alfalfa seed about 9,000,000 pounds. This represents a wholesale value of between five and six million dollars and a potential crop producing value that will run into very high figures. There is no longer any doubt that while a part of this imported red clover and alfalfa seed is better suited to one section than to another, some of it is not fit for use in the United States at all. The seed trade, which desires to serve agriculture, looks to the Department of Agriculture for advice as to the best seed to import and the farmer, either as an individual or through organized co-operative associations, expects information in regard to the kind of seed best suited for each section. Up to the present, the department has been able to establish the general principle only that different strains of alfalfa and red clover have varying values for the United States and that some strains are worthless. The establishment of this principle has led to the passage of a seed staining bill, which is now operative. In order that data needed for the proper administration of the law may be accumulated, it will be necessary not only to continue studies on the adaptation of different strains of red clover and alfalfa but to make a field test of imported lots.

Work Done Under Appropriation.

Under this appropriation field studies are conducted at field stations throughout the United States, and cooperative relations are maintained with nearly all of the State experiment stations and the insular experiment stations, pertaining to the production and improvement of all crop plants used for forage either as hay, fodder, silage, or pasture, and incidentally of all plants used for green manuring, turf production, and soil binding. Among the more important groups of plants concerned in these investigations are the grasses, clovers, alfalfa, sorghums, millets, soybeans, field peas, velvet beans, vetches, melilots, cacti, and lespedezas.

(dd) BIOPHYSICAL INVESTIGATIONS.

Appropriation, 1927.....\$33,952
 Budget, 1928 33,952

Work Done Under Appropriation

Under this item, the Bureau is charged with the investigation of the physical laws involved in the growth and reproduction of plants. Viewing the growth and reproduction of plants from this angle, investigation of more urgent problems that involve the response of agricultural plants to heat, light, moisture, electric currents and the chemical composition of the soil are undertaken.

(ee) ADMINISTRATIVE EXPENSES.

Appropriation, 1927.....\$26,000
 Budget, 1928..... 25,000
 Decrease..... 1,000

Work Done Under Appropriation

This appropriation provides for the general administration expenses of the Bureau of Plant Industry, including general determination and direction of its investigational activities; the administrative editing of manuscripts reporting results, their preparation for printing, and the revision of proof; the systematic administration of fiscal affairs, and maintenance of adequate financial records; supervision of the purchase of equipment and supplies and maintenance of inventory records; maintenance of a specialized plant library service; supervision of personnel; supervision of mails and files; supervision of janitor service in space occupied by the Bureau.

FOREST SERVICE

(a) SALARIES.

Appropriation, 1927.....	\$3,325,000
Budget, 1928.....	3,325,000

Work Done under Appropriation

This appropriation is devoted primarily to the payment of salaries of employees engaged in the protection and administration of the national forests. The bulk of the money is used for the employment of forest supervisors, assistant forest supervisors, forest rangers, and clerks on the national forests; surveyors, draftsmen, and clerks in the national forest district offices; and draftsmen and clerks in the Forester's office in Washington. These funds are used almost exclusively for the payment of salaries of year-long employees, although a small percentage is expended in paying the salaries of temporary employees. This appropriation, to a large extent, is used interchangeably with the appropriation "Forests and General Administration".

(b) INTRODUCTORY PARAGRAPH, CHANGE IN LANGUAGE.

The language of the introductory paragraph has been amended by omitting the proviso: "Provided, That the cost of any building purchased, erected, or as improved shall not exceed \$1,500". The omitted language is no longer necessary, as section 2 of the Act of March 3, 1925 (45 Stat., 1132) permanently fixes \$1,500 as the maximum that may be expended for any building, with the exception of three buildings to cost not over \$2,000 each and three not over \$2,500 each in each fiscal year.

The language of the paragraph has been further amended by omitting the clause "and the Secretary of Agriculture may, in his discretion, permit timber and other forest products cut or removed from the national forests to be exported from the State or Territory in which said forests are respectively situated." The omitted language is no longer necessary, as the Act of April 12, 1926 (Public No. 100) contains permanent legislative authority for the exportation of timber cut on the national forests.

(c) FORESTS AND GENERAL ADMINISTRATION

Appropriation, 1927.....	\$3,007,973
Budget, 1928.....	3,135,000
Increase.....	\$ 127,027

The increase of \$127,027 will be expended for the following purposes:

(1) \$77,285 for prevention of forest fires. Of this amount \$60,000 will be used for the employment of additional fire guards at points where experience has shown that they are badly needed. Economical and successful protection depends upon the presence in the woods, during the fire season, of a force of guards sufficient to catch fires while small. This now occurs with the majority of fires but when as on the

Kaniksu Forest of North Idaho during the season of 1926, 153 fires are started by a single lightning storm, some fires escape before the available guards can get to all of them. The sum of \$10,500 will be used for the purchase and maintenance of two fire prevention outfits. Similar outfits now in use have demonstrated clearly that it pays to use this method of putting the necessity of reducing annual fire losses squarely before National Forest residents in localities where large numbers of man-caused fires occur. The balance, \$6,785, represents the time of rangers and guards who will be employed on the military forests and additional purchase areas of the East.

(2) \$6,000 for administration of grazing lands. This amount will be used for the employment of three trained grazing experts on as many National Forests having heavy demands for range and difficult problems in grazing administration.

(3) \$2,190 for reforestation by planting. This amount represents the time of rangers who will be employed on the military forests of the East in planting work.

(4) \$835 for construction of roads, trails, telephone lines, etc. This represents the time of new rangers and guards on the military forests of the East engaged in constructing improvements needed primarily for protection purposes.

(5) \$40,717 for administration of commercial timber sales. This amount will be used for the enlargement of the force now engaged in administering timber sales. Over a period of years the timber sale business on the national Forests increases at from 8 to 10 per cent annually. For the fiscal year 1928 it is expected that there will be an increase of from 250 to 300 million feet in the amount of timber cut, bringing in over a half million dollars of additional revenue.

Change in Language

The language of this section has been amended by inserting in the paragraph for national forest district one, after the words "Wallace, Idaho" the words "Priest River, Idaho; Newport, Washington,"; by inserting in the paragraph for national forest district two, after the word "Michigan" the word "Oklahoma,"; and by omitting from the paragraph for national forest district seven, the word "Oklahoma". The first of these changes is made to authorize the upkeep of the graves of men who recently lost their lives while fighting forest fires and who were buried in cemeteries in Priest River, Idaho, and Newport, Washington, as provided by the Act of July 3, 1926. The present authorization of \$200 is adequate to care for their graves in addition to those of the men who lost their lives while fighting fires in 1910. The other two changes in language are made necessary by the transfer of the Wichita National Forest in Oklahoma from national forest district seven to national forest district two.

Work Done under Appropriation

This appropriation is used for defraying the cost of the current operating expenses of the national forests, the national forest district offices, and the Washington office of the Forest Service. Expenditures are made on those activities which have to do with the administration, protection, and management of the national forests. Since the Forest Service is of necessity organized on a regional basis rather than along functional lines, it naturally follows that some contributions of time and expense are made to activities for which special appropriations are made.

(d) FIGHTING FOREST FIRES.

Appropriation, 1927.....	\$283,000
Budget, 1928.....	283,000

The limitation on the amount that may be used for combating epidemics of tree-killing insects has been raised to \$75,000. Insect epidemics are comparable to forest fires in that prompt attack is essential to effective results. To estimate for specific projects from one to two years ahead is unsatisfactory and is comparable from an economics standpoint to letting a fire burn while waiting for authorization to spend the necessary money to put it out. Like fire, insect infestations spread during the wait and unnecessarily heavy losses are incurred. This has been the history of insect epidemics in California, Arizona, and Colorado. The insect epidemic in lodgepole in Montana, on which very little work could be done because of lack of funds would now require an expenditure of \$150,000 if the most effective form of control were to be undertaken. The losses have already been at least treble that amount, and unless checked by control work or through natural causes, still heavier losses of valuable timber in the Bitterroot valley and in the Big Hole region appear inevitable. The ability to take prompt action when an insect epidemic starts would be real economy. The present \$58,000 authorization is insufficient and the increase of \$17,000 therein will enable the Forest Service more effectively to combat insect infestations in their incipiency.

Work Done under Appropriation

This appropriation is used primarily for the suppression of forest fires. Administrative restrictions placed upon the use of the appropriation by the Forest Service provide that expenditures shall not be made from it until forest fires have actually started. An exception is made to this rule, however, when fire conditions become so critical that the regular protective organization, which is financed from the appropriation "Forests and General Administration" is unable to cope with the situation and when, therefore, the temporary employment of additional guards will reduce expenditures for fire fighting. Expenditures are made for the employment of fire fighters; purchase of subsistence supplies, equipment, and other supplies needed in fighting forest fires;

transportation of temporary laborers, supplies, and equipment; travel expenses of regular employees when the travel performed extends beyond the boundary of the unit to which they are regularly assigned or when the activities to which men are assigned do not include fire fighting.

Not to exceed \$58,000 of this appropriation (\$75,000 recommended for 1928) may be used for combating insect infestations on the national forests. This money is expended upon insect control projects which have been examined by the Bureau of Entomology and for which practicable control measures are considered feasible.

The sum of \$33,000 is provided for preventing and suppressing forest fires on the lands revested in the United States by the Act approved June 9, 1916, and on lands known as the Coos Bay Wagon Road Lands. These lands are intermingled with national forests and State lands in the State of Oregon. Lands within the exterior boundaries of national forests are protected by the national forest organizations. Lands intermingled with State lands are protected by the various timber protective associations recognized by the State of Oregon, and reimbursement is made to these associations by the Forest Service for the cost of fighting and preventing forest fires on the Government's land.

(e) AERIAL FIRE CONTROL

Appropriation, 1927.....	\$50,000
Budget, 1928.....	50,000

Work Done Under Appropriation

This appropriation is used for the operation of an airplane patrol in California, Oregon, Washington, Idaho, and Montana, for detecting fires in their incipency and for making a reconnaissance of going fires.

(f) LAND CLASSIFICATION.

Appropriation, 1927.....	\$55,000
Budget, 1928.....	55,000

Work Done Under Appropriation

The item for land classification, entry surveys, and land exchange is made necessary by the Act of June 11, 1906 (34 Stat., 233), and August 10, 1912 (37 Stat., 269), which provide for the listing for homestead entry of lands within the national forests found to be chiefly valuable for agriculture and the survey of such lands. It is also required because of the Act of March 20, 1922, and several special Acts providing for the exchange of privately owned lands within the boundaries of national forests for national forest lands or timber of equal value. In order that the Government's interests in these exchanges may be adequately protected it is necessary that a careful examination be made both of the lands offered and the Federal land selected for exchange.

(g) SANITATION AND FIRE PREVENTION.

Appropriation, 1927.....\$40,000
 Budget, 1928..... 40,000

Work Done Under Appropriation

The item providing for the construction of sanitary facilities and for fire-preventive measures on public campgrounds is intended to meet the expenses which the Forest Service must incur in order to provide simple facilities at the numerous campgrounds within the national forests which are extensively used by the public and where the public interests require that provision be made to lessen the danger from fire and to promote sanitary conditions. There are approximately 1,500 of these camp-sites, many of which are very extensively used by the public, particularly on week-ends and holidays.

(h) EQUIPMENT AND SUPPLIES.

Appropriation, 1927.....\$130,000
 Budget, 1928..... 130,000

Work Done Under Appropriation

This appropriation is used largely for the purchase of stationery and office supplies in general use in Forest Service offices. The purchase of stationery and office supplies for all offices outside of Washington, D.C., is centralized at the Forest Service Supply Depot at Ogden, Utah. An attempt is made to hold expenditures for supplies in the above classes to the minimum so that as large a balance as possible may be available for the purchases of urgently needed fire-fighting equipment. Supplies and equipment of special design or articles for which the demand is not general throughout the Forest Service are not purchased and distributed by the Ogden Supply Depot but are purchased by the various offices from their "Forests and General Administration" allotments, except where the equipment and supplies are to be used on projects financed by special appropriations.

(i) FOREST PRODUCTS.

Appropriation, 1927.....\$403,264
 Budget, 1928..... 443,264
 Increase..... 40,000

The increase of \$40,000 is needed for more adequate attack on immense problems of timber waste, equal to the protection of forests from fire and to reforestation in national importance. Of this increase \$25,000 will be used on the study of woods, mills, and fabricating plants, waste and studies of consuming markets to develop possible uses for such material; \$5,000 for developing timber preservation methods; \$5,000 to expand pulp and paper investigations; \$2,500 to develop more efficient processes in production of naval stores, and \$2,500 for technical studies of forest fires.

Work Done Under Appropriation

The bulk of forest products research is done at the Forest Products Laboratory, Madison, Wis., where there is a staff of trained foresters, engineers, and chemists equipped with laboratories and other facilities. These specialists are constantly engaged in the laboratory, at industrial plants, and in the forest in experimenting on and studying the best ways to use wood, with the major object of reducing waste of timber and prolonging our forest supplies, and also of increasing the value of timber and thus encouraging its growth as a crop. The Forest Service is therefore attempting to insure adequate timber supplies for our national needs by (1) growing timber on the national forests and encouraging timber growing on privately-owned lands, and (2) through forest products research, encouraging a less wasteful use of our present timber supply and that to be grown in the future.

A few examples will illustrate the work. The laboratory has developed practical means of making paper from species hitherto unused for that purpose, thus tending to reduce the great pressure on our spruce and aspen supplies. It has made a nation-wide study of lumber grading and developed the basic foundation for standard lumber grades recently adopted by the lumber and wood using industries. It has developed methods of kiln-drying lumber that are greatly reducing wastes from poor seasoning of wood. It has developed box and crate making into a science that not only saves wood but a vast loss of commodities in shipment. Besides these and many other similar projects which have immediate importance and application, the laboratory has done a great deal of fundamental research on the chemical and physical nature of wood; this work being of basic importance in developing new uses for wood.

The Madison laboratory is constantly and successfully seeking new ways to get the industries to participate in its work, not merely as a means of sharing the cost, but of getting the industries actively interested in better wood utilization as an important industrial and social objective. The latest and most comprehensive attempt was the National Conference on Utilization of Forest Products, which was held in the fall of 1924 and which resulted in a permanent industrial organization to reduce timber waste.

(j) RANGE INVESTIGATIONS.

Appropriation, 1927.....	\$40,320
Budget, 1928.....	40,320

Work Done Under Appropriation

This item makes possible experiments and investigations of growth conditions and value of our range forage plants, with a view to obtaining the greatest value from their use with maintenance of the stand of forage; the practical possibilities of artificially reseeding depleted ranges; the carrying capacity of the range; the methods of management of livestock necessary to afford economic production on the ranges; the methods for the

control of losses of livestock from poisonous plants; and the adjustments necessary in livestock grazing to prevent undue injury to timber production. watershed values, or other uses of the land -- in short, to develop the basic principles underlying a stable, conservative and profitable use of the forage resources within the national forests and on other public ranges. The returns to the Government from grazing on national forests alone approximate \$2,000,000 a year. In order to handle this work three experiment stations are maintained and several specialists are assigned to particular problems.

(k) PLANTING ON NATIONAL FORESTS.

Appropriation, 1927.....	\$131,700
Budget, 1928.....	150,000
Increase.....	\$ 18,300

The increase of \$18,300 will be used for enlarging planting operations on the Michigan National Forest and the National Forests of the East. Almost all of the increase will be utilized in actually setting out trees since the present nurseries are capable of supplying seedlings and transplants with very little additional cost.

Change in Language

The language of this paragraph has been amended by omitting the entire proviso, which is no longer considered necessary as the Clarke-McNary Act of June 7, 1924, provides for the distribution of planting stock to farmers of the various cooperating States. The Forest Service is now cooperating with the State of Nebraska under that Act.

Work Done Under Appropriation

The Planting appropriation is used to start tree crops on national forest-land which, usually because of past fires, is now bare and is not seeding in to trees. The necessary costs include those for seed collecting, for growing the trees from two to four years in nurseries, and for planting the trees in their permanent places in the field. From 30 to 50 per cent of the total cost of planting an acre is for producing young trees of the right kinds, sizes, and health and for transporting them from the nursery to the area to be planted. The average cost per acre planted is about \$12, but there is a wide range in costs between regions. The cost on the Michigan National Forest is only from \$3 to \$4 per acre, while some areas in the Rocky Mountains, where only sturdy four-year-old trees planted with great care can be expected to live, the cost is from \$15 to \$20 per acre. The work is concentrated in a few regions, in each of which a nursery is maintained. The Michigan Forest, the Minnesota Forest, and the Nebraska Forest each have a nursery which supplies trees for planting on those forests. A nursery on the Pike Forest in Colorado furnishes trees for planting on the forests of that State and small quantities for the forests in Wyoming. The national forests of northern Idaho and western Montana are supplied from a large nursery on the Lolo Forest on the Montana side of the Bitterroot Mountains. Those of western

Oregon and Washington get their trees for planting from a nursery on the Columbia Forest in southern Washington. A seventh nursery was started, on an experimental scale, on the Monongahela Forest in West Virginia to furnish trees for planting old burns and abandoned fields on the national forests in the southern Appalachians.

(1) SILVICAL INVESTIGATIONS.

Appropriation, 1927.....	\$250,000
Budget, 1928.....	310,000
Increase.....	60,000

There is an increase of \$60,000 in this item, to be immediately available for the establishment of forest experiment stations in the Ohio-Mississippi valley and in Pennsylvania and neighboring States. These stations fit into the Department's program of a series of forest research centers in the important forest regions of the United States. In both of these regions the forest area constitutes an appreciable proportion of the total. The Ohio-Mississippi valley forest problem is largely one of assisting the farmer in the management of his farm woodlots, as approximately 60 per cent of the entire area of 40 million acres in the region is on farms. The proposed station for Pennsylvania is essential in fulfilling the Department's program in view of the fact that this section, once one of the heaviest lumber producing regions of the country, could be made self-sustaining from a wood consumption point of view. At the present time this region is importing 75 per cent of its lumber and other wood requirements. Forest research is necessary to work out the basic principles of timber-growing production that the forest lands in these regions may be made fully productive.

Change in Language.

The language of this item has been amended by substituting for the last clause thereof, the following: "of which amount not to exceed \$60,000 shall be immediately available for the establishment of forest experiment stations as provided in the Act entitled 'An Act to authorize the establishment and maintenance of a forest experiment station in the Ohio and Mississippi Valleys,' approved July 3, 1926, and as provided in the Act entitled 'An Act for the establishment and maintenance of a forest experiment station in Pennsylvania and the neighboring States,' approved July 3, 1926."

Work Done Under Appropriation

The Department of Agriculture several years ago adopted a program of establishing ten or twelve regional forest experiment stations, one in each of the main forest regions. Eight stations have been established, covering the following regions: Southern pine regions, Appalachian Mountains, Northeastern States, Lake States, the Northern, the Central, the Southern Rocky Mountains, the Pacific Northwest, and California. The funds under this appropriation are used for the upkeep of these stations. Congress has also authorized stations for the Ohio and Mississippi valleys and for Pennsylvania and neighboring States. Each station has a staff of trained

1. The first thing I noticed when I stepped out of the plane was the cold air. It was a sharp contrast to the warm, humid air of the tropics. I had heard that the weather in the north was harsh, but I didn't realize just how cold it would be. The wind was biting, and the sun was a pale, distant orb in the sky.

THE FIRST IMPRESSIONS

As I walked through the airport, I felt a sense of isolation. The people around me were strangers, their faces a blur. I was alone in a foreign land, and the realization hit me. I had to rely on myself from now on.

The first few days were a blur of activity. I had to get my bearings, find a place to stay, and figure out how to get around. The language was a barrier, and I often felt lost. But I was determined to make the most of this experience. I started by visiting the local markets, where I could see the way of life of the people. The vendors were friendly, and I managed to pick up a few phrases. I also went to the museum, where I learned about the history of the country. The guides were knowledgeable, and I was fascinated by the ancient ruins. I was beginning to feel like I was part of something.

THE CHALLENGES

Not everything was perfect, though. There were challenges. The food was different, and I had to get used to it. The climate was still a bit of a shock, and I had to learn to dress for the weather. There were also some minor inconveniences, like the lack of certain amenities. But I was resilient. I adapted to the new environment, and I found that I was enjoying the challenges. I was growing as a person, and I was learning so much about the world and myself.

THE DISCOVERIES

As I continued my journey, I made some discoveries. I found that I was more capable than I thought I was. I was able to overcome my fears and face the unknown. I discovered that I had a talent for languages, and I was able to communicate with the locals. I also found that I had a deep appreciation for the beauty of the natural world. The mountains, the rivers, the forests, they were all so beautiful. I was in luck, as I had found a place where I could truly be myself. I was no longer a stranger in a foreign land. I was a part of it. I was home.

foresters, who study the forests of their region to ascertain how to control the forest fire evil, make current logging practices less destructive, cut old timber so a new crop will start naturally, or, if natural reproduction fails, determine what trees are best to plant and how to plant them, how much timber different kinds of forest land can produce, in short, how best to grow timber crops. Forests are the most complex of all crops, and the development of public and industrial forestry demands knowledge of how to start, develop, and harvest these crops. A highly significant by-product of the forest experiment stations, has been the impetus they have given to forestry by collecting and popularizing knowledge about forests and by working with timber-land owners.

(m) RECONNOISSANCE OF FOREST RESOURCES.

Appropriation, 1927.....	\$108,550
Budget, 1928.....	108,550

Work Done Under Appropriation.

This appropriation is used for (1) making timber surveys and (2) carrying on a reconnoissance of grazing resources on the national forests. During the past several years sixty per cent of the funds made available under this heading have been used for timber surveys while forty per cent has been devoted to grazing reconnoissance.

(1) Timber surveys.- Cruising is necessary before timber can be appraised and advertised for sale and before plans can be made for management of the timber resource of the forests, so as to give the greatest stability and permanency to the industries that use the timber and to the communities which those industries support. The money is used to pay the wages and necessary expenses of estimators on large projects. The cruising necessary before small sales can be made is done by the regular force, but when a large area must be covered a special crew is needed. Such a crew often works on two or more national forests during one field season.

(2) Grazing surveys.- This project consists of an inventory of the grazing resources and preparation of plans for grazing management, range development, and improvement, together with the necessary administrative features of the work. Most of the national forest ranges are intensively used, and, in view of the severe growing conditions on the range and the danger of depletion through excessive use, it is important that we know more definitely than at present just what forage is on our ranges and the possibilities for applying improved methods of management which will allow stabilization of the livestock industry dependent on the national-forest ranges on a profitable basis.

(n) MISCELLANEOUS FOREST INVESTIGATIONS.

Appropriation, 1927.....	\$33,800
Budget, 1928.....	33,800

Work Done Under Appropriation

This appropriation is used largely for the employment of persons engaged in the dissemination of information resulting from administrative and investigative studies of forestry matters.

(o) IMPROVEMENTS OF NATIONAL FORESTS

Appropriation, 1927 (including deficiency \$100,000).....	\$526,900
Budget, 1928.....	526,900

Taking into consideration the fact that the appropriation of \$426,900 in the Agricultural Act for 1927 was augmented by an appropriation of \$100,000 provided by the Deficiency Act of July 3, 1926, for the construction and maintenance of improvements in the four southern California forests, there is no increase in 1928 over the total available for expenditure in the fiscal year 1927.

Changes in Language.

The language of the paragraph has been amended by inserting therein immediately after the amount to be appropriated, the following: "of which amount \$100,000 is reserved for expenditure on the Angeles, Cleveland, Santa Barbara, and San Bernardino National Forests in Southern California: Provided, That such sum of \$100,000 shall not be expended unless an equal amount is contributed for such work by State, county, municipal, and/or other local interests to be paid, in whole or in part, in advance of the performance of the work for which this appropriation provides".

In order to permit the maintenance of the Cass Lake dam project, the language has been further amended by substituting for the last proviso of the paragraph the following: "Provided further, That not to exceed \$2,000 of this appropriation may be used for repair and maintenance of the dam at Cass Lake, Minn."

Work Done Under Appropriation.

This item provides for the construction and maintenance of all improvements on the national forests except roads, trails, bridges which are parts of a highway or trail system, and improvements on public camp grounds. The larger portion of the appropriation is used for improvements which are essential to the proper protection of the national forests from fire. This class of improvements, includes telephone lines, lookout houses and towers, fire breaks, and firemen's cabins. A smaller sum is used for administrative and range improvements.

(p) COOPERATIVE WORK.

Change in Language.

The language of the concluding paragraph under general expenses has been amended by omitting all the matter after the word "appropriated" and substituting therefor, the following: "all moneys received as contributions toward cooperative work under the provisions of section 1 of the Act approved March 3, 1925 (43 Stat., 1132), which funds shall be covered into the Treasury and constitute a part of the special funds provided by the Act of June 30, 1914 (39 Stat., 430)".

This change in language is necessary for the following reasons: The work authorized by Section 1 of the Act of March 3, 1925 is closely related to that authorized by the Act of June 30, 1914 (39 Stat., 430) and accounting will be materially simplified by having the cooperative money under the 1925 Act deposited in the same fund as that under the 1914 Act, as is done with the cooperative money received under the Act of August 11, 1916 (39 Stat., 462). At the present time it is not possible to include the cooperative deposits under the 1925 Act with those under the other two Acts because the language in the 1927 Appropriation Act gives the funds received under section 1 of the Act of March 3, 1925, the status of an annual appropriation while the funds under the other two Acts have the status of a continuing appropriation. Because of the similarity in the purpose for which some of the deposits under the several Acts are made, there is and will probably continue to be confusion, resulting in some deposits going into the wrong fund. This can be avoided by having all cooperative deposits under the three Acts placed in the special fund "Cooperative Work, Forest Service," created under the Act of June 30, 1914, as contemplated by the changes in language.

(q) AUTHORIZATION FOR PERSONAL SERVICES ETC.,
ACT OF MARCH 1, 1911.

Change in language

The paragraph which authorizes the employment of persons in the City of Washington under the Appropriation for Acquisition of forest lands (Act of March 1, 1911) has been omitted. The authorization for this purpose has been combined with the limitation for personal services in Washington under the item for "Acquisition of Additional Forest Lands".

Note:- In connection with the Forest Service, also see "Miscellaneous Items" for "Forest Fire Cooperation", (page 98); "Cooperative Distribution of Forest Planting Stock", (page 99); "Acquisition of Additional Forest Lands", (page 100); and "Forest Roads and Trails", (page 103).

BUREAU OF CHEMISTRY AND SOILS

It is proposed to establish a Bureau of Chemistry and Soils in the Department of Agriculture, which will take over all the research work of the Department on chemistry and soils. To the new bureau will be transferred all of the present Bureau of Soils; all of the present Bureau of Chemistry except those units having to do with the enforcement of the Food and Drugs Act, Tea Act, Naval Stores Act, and collaboration with other Departments; and the soil-bacteriology and soil-fertility investigations of the Bureau of Plant Industry.

(a) SALARIES.

Appropriation, 1927....	\$185,765
Budget, 1928.....	<u>182,740</u>
Decrease.....	3,025

The language of this paragraph is the same as that for the "Salaries" item of the present Bureau of Chemistry.

The 1927 total of \$185,765 shown for "Salaries" is made up of the following items:

(1) "Salaries", Bureau of Soils.....	\$88,260
(2) Portion of "Salaries", Bureau of Chemistry, applicable to items trans- ferred to new bureau.....	86,405
(3) Portion of "Salaries", Bureau of Plant Industry, applicable to soil- bacteriology and soil-fertility items transferred to new bureau.....	<u>11,100</u>
Total.....	185,765

Work Done Under Appropriation.

Salaries of employees both in Washington and in the field who are assigned to the different lines of work, and to the general administrative work for all activities under the proposed new Bureau of Chemistry and Soils will be paid from this appropriation.

(b) INTRODUCTORY PARAGRAPH, BUREAU OF CHEMISTRY AND SOILS.

The introductory general expense paragraph of the Bureau of Chemistry and Soils is the same as the general expense paragraph of the present Bureau of Soils.

(c) AGRICULTURAL CHEMICAL INVESTIGATIONS.

Appropriation, 1927....	\$148,140
Budget, 1928.....	<u>152,740</u>
Increase.....	4,600

Change in Language

This item has been transferred from the present Bureau of Chemistry, and the language amended by adding at the end thereof the following clause: "to cooperate with associations and scientific societies in the development of methods of analysis." In order to promote uniformity and make

comparable results of analyses obtained by agricultural chemists working in different localities, it is necessary in the development of methods of analysis to cooperate with various scientific societies, particularly the Association of Official Agricultural Chemists. Methods of analysis that will give comparable results can be developed more certainly and more economically through cooperation with scientific societies working on the same or similar problems than in any other way. Authorization for cooperation of this character has been carried for many years under the item for the enforcement of the Food and Drugs Act.

The amount of \$148,140 for 1927 is composed of the present appropriation of \$123,400, together with a transfer of \$24,740 from the present appropriation for the "Enforcement of the Food and Drugs Act". This transfer is made because certain fundamental research on the chemical composition of foods and on the changes that take place in foods as the result of the action of microorganisms has been carried on under that appropriation, but in the division of the work it properly falls in the research unit. The information developed by these researches was essential to the enforcement of the act; but it has much wider application, such as use by the industries in developing methods to prevent spoilage of food. The results of this research will, of course, still be available to the regulatory unit. Accordingly, a transfer of \$24,740 is recommended from the appropriation for the enforcement of the Federal Food and Drugs Act, from which this work has been previously financed, to the appropriation for Agricultural Chemical Investigations under which it will be carried on in the Bureau of Chemistry and Soils.

The recommended increase of \$4,600 under this item is for the purpose of developing methods and bringing clearly to the attention of small town and country butchers, who are now responsible for serious damage to cattle hides and calf skins, the best methods of taking-off and curing hides and skins. It is proposed to do this through actual demonstrations by a competent and experienced skinner and curer, and through the use of other educational methods. It is estimated that the losses through damage to hides and skins in take-off and improper curing will approximate \$20,000,000 annually, a large part of which can be saved by bringing the facts clearly to the butchers and helping them to improve their work.

Work Done Under Appropriation

Under this appropriation basic scientific research in agricultural chemistry is carried on, and the results of such research are applied to the solution of problems involved in the production, preservation, and profitable utilization of farm crops. Studies are made with a view to increasing the protein content of wheat and other grains, thus enhancing both nutritive and market values. The chemical composition of a great variety of feedstuffs is determined with especial reference to the nutritionally essential amino acids, in order to furnish practical feeders with information that will enable them to make the most economical combinations of available feedstuffs. Studies are made of the vegetable oils in order that they may be more profitably utilized. Methods for manufacturing marketable products from cull and surplus fruits and vegetables are developed. Improvements are made in processes for manufacturing paper and for tanning leather. Carbohydrate investigations are conducted.

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system has solutions for all values of the parameters α and β if the function $f(x)$ is continuous and has a bounded derivative. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system (1) for arbitrary values of the parameters α and β . It is shown that the solutions of the system (1) are unique and depend continuously on the parameters α and β . The third part of the paper is devoted to a study of the asymptotic properties of the solutions of the system (1) for large values of the parameters α and β . It is shown that the solutions of the system (1) approach zero as the parameters α and β approach infinity.

2. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (2) for arbitrary values of the parameters α and β . It is shown that the system has solutions for all values of the parameters α and β if the function $f(x)$ is continuous and has a bounded derivative. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system (2) for arbitrary values of the parameters α and β . It is shown that the solutions of the system (2) are unique and depend continuously on the parameters α and β . The third part of the paper is devoted to a study of the asymptotic properties of the solutions of the system (2) for large values of the parameters α and β . It is shown that the solutions of the system (2) approach zero as the parameters α and β approach infinity.

3. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (3) for arbitrary values of the parameters α and β . It is shown that the system has solutions for all values of the parameters α and β if the function $f(x)$ is continuous and has a bounded derivative. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system (3) for arbitrary values of the parameters α and β . It is shown that the solutions of the system (3) are unique and depend continuously on the parameters α and β . The third part of the paper is devoted to a study of the asymptotic properties of the solutions of the system (3) for large values of the parameters α and β . It is shown that the solutions of the system (3) approach zero as the parameters α and β approach infinity.

4. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (4) for arbitrary values of the parameters α and β . It is shown that the system has solutions for all values of the parameters α and β if the function $f(x)$ is continuous and has a bounded derivative. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system (4) for arbitrary values of the parameters α and β . It is shown that the solutions of the system (4) are unique and depend continuously on the parameters α and β . The third part of the paper is devoted to a study of the asymptotic properties of the solutions of the system (4) for large values of the parameters α and β . It is shown that the solutions of the system (4) approach zero as the parameters α and β approach infinity.

Studies are made of the physiological effects of foods and drugs on the human organism. Investigations are directed towards finding the causes and reducing the losses from deterioration and spontaneous combustion in grains and other farm crops.

(d) COLOR INVESTIGATIONS.

Appropriation, 1927.....	\$54,800
Budget, 1928.....	54,800

This item has been transferred from the present Bureau of Chemistry, without change.

Work Done Under Appropriation.

Experiments to develop processes for the manufacture of fast dyes in order to make this country independent of any foreign country are carried on under this appropriation. American manufacturers now produce vat dyes of brilliant color and lasting quality as the result of processes developed in this work for making cheaply and of remarkable purity phthalit anhydride, one of the essential dye intermediates, which formerly could be obtained only in Germany. More than 300 dyes, chemicals, and drugs can be manufactured from this one intermediate. More than 20 other processes have also been worked out. Work is done on dyes used as biological stains in identifying the various microorganisms that produce disease. Without stains of known composition, disease producing bacterie can not certainly be identified. Work is carried on to develop methods for utilizing lignin, the essential part of wood cells and plant fibers, which promises to be of considerable economic importance.

(e) SIRUP AND SUGAR INVESTIGATIONS.

Appropriation, 1927.....	\$28,000
Budget, 1928.....	28,000

This item has been transferred from the present Bureau of Chemistry, without change.

Work Done Under Appropriation.

This work has for its object the development of improved methods for the manufacture of cane, sorghum, maple and other table sirups and their application in the industries. Chemical problems relating to the maximum yield of sugar from cane and from beets are investigated in order to assist manufacturers of domestic sugar to increase their yield and also to bring larger returns to the growers of cane and of sugar beets.

(f) INSECTICIDE AND FUNGICIDE INVESTIGATIONS.

Appropriation, 1927.....	\$27,580
Budget, 1928.....	<u>27,000</u>
Decrease.....	580

This item has been transferred from the present Bureau of Chemistry, without change in language.

Work Done Under Appropriation.

Under this item chemical problems relating to the composition, manufacture, action, and application of insecticide and fungicides are investigated. The object of the work is to develop chemical compounds for the more effective control of insects and fungi which are cheaper and better than those in general use, in order to reduce the enormous losses that occur from these causes in the growing of crops. This work is carried on in cooperation with the Bureaus of Entomology and Plant Industry.

(g) PLANT-DUST EXPLOSIONS AND FIRES.

Appropriation, 1927...	\$26,555
Budget, 1928.....	<u>25,000</u>
Decrease.....	1,555

This item has been transferred from the present Bureau of Chemistry, without change in language.

Work Done Under Appropriation.

Investigations are made of the causes of the destructive dust explosions that occur in flour mills, grain elevators, threshers, and other manufacturing plants where plant dusts are generated, and methods are developed for preventing such explosions. The research work of the Bureau of Chemistry has been practically confined to the dust-explosion hazards in the grain-handling industry, which have caused extensive losses of life and property. Records of approximately 270 dust explosions in plants in the United States and foreign countries have been obtained. In 66 of these explosions 444 lives were lost, and in 83 of them 780 people were injured. The total money loss in 132 explosions approximately \$32,917,000, an average of more than \$250,000 for every explosion. The Bureau of Chemistry is conducting special research investigations to determine the causes of these explosions and the circumstances favorable to their origin. More than 21,000 establishments in various industries in the United States, manufacturing products with an annual value in excess of \$6,779,449,000, are subject to the dust explosion hazard. The bureau investigations have shown that extensive losses have also been experienced from dust explosions and fires in grain-threshing machines, particularly in the Pacific Northwest, and from cotton-gin fires in the Southwest.

(h) NAVAL STORES RESEARCH

Appropriation, 1927.....	\$10,000
Budget, 1928.....	10,000

This item has been transferred from the present Bureau of Chemistry, where it had been heretofore carried as part of the appropriation "Naval Stores Investigations".

Work Done Under Appropriation.

The work carried on under this appropriation is the development of methods for improving the production of rosin and turpentine. Scientific studies are made of the best methods for producing, weighing, handling, grading and using rosin and turpentine, and educational work is carried on among naval stores producers in order to explain and demonstrate new and improved methods, processes, equipment, and plant layout and construction.

(i) SOIL CHEMICAL INVESTIGATIONS

Appropriation, 1927.....	\$25,640
Budget, 1928.....	25,640

This item has been transferred from the present Bureau of Soils, without change.

Work Done Under Appropriation.

Investigation of soil types and all chemical properties of soils in their relation to soil formation, soil texture, and soil productivity.

(j) SOIL PHYSICAL INVESTIGATIONS

Appropriation, 1927.....	\$13,145
Budget, 1928.....	13,145

This item has been transferred from the present Bureau of Soils, without change.

Work Done Under Appropriation

Mechanical analyses of soils to determine their textural characteristics; studies of the effects of changes in soil texture and of the influence of various factors on soil conditions.

(k) INVESTIGATION OF FERTILIZER RESOURCES.

Appropriation, 1927.....	\$248,215
Budget, 1928.....	<u>275,000</u>
Increase.....	26,785

This item has been transferred from the present Bureau of Soils, without change in language. While there is an apparent increase of \$26,785 in the amount of the item, to continue the work of the Fixed Nitrogen Research Laboratory, there is in reality an actual decrease of \$13,215 in the proposed appropriation for 1928 below the total funds available for this purpose for the fiscal year 1927. In the Agricultural

Act for 1927, this item included \$185,000 for the operation of the Fixed Nitrogen Research Laboratory and, in addition, an unexpended balance of approximately \$50,000 remained available (for use in that year) from the allotments previously made by the President from National Defense Act funds, making the total amount available for 1927, \$235,000. As \$211,785 is being requested for the nitrate work under this item for the fiscal year 1928 and \$10,000 under the item for "Rent of Buildings in the District of Columbia", to pay the rental of the laboratory during that year, the total estimate for 1928 is \$221,785, or \$13,215 less than the amount available for the current fiscal year.

Work Done Under Appropriation

The work under this appropriation consists of the determination of the fertilizer resources of the United States; investigation of laboratory and field methods and, through cooperation with commercial concerns, of the potential sources of fertilizer ingredients; development of methods for utilizing to better advantage natural fertilizer resources; investigation of the technology of phosphoric acid production; researches on methods of fixing the nitrogen of the atmosphere for agricultural purposes; and studies of the production of new and improved fertilizer mixtures and determination of their suitability for use.

(1) SOIL SURVEY INVESTIGATIONS.

Appropriation, 1927.....	\$209,220
Budget, 1928.....	<u>206,000</u>
Decrease.....	3,220

This item has been transferred from the present Bureau of Soils, without change in language. The subappropriation "Classification of Agricultural Lands," however, has been merged with this activity.

Work Done Under Appropriation

This work comprises the surveying, mapping, and classifying of the soils of important areas in different parts of the country; (the examination and classification of the soils of selected areas, with a view to determining their value for agricultural purposes;) the preparation of reports containing descriptive matter relating to the soils, their character, origin, and value for crops, and to the agricultural conditions found in each area surveyed; the preparation of maps showing the distribution of the soils, and the dissemination of information relating to the use of soils. The purpose is to acquire a knowledge of the soils and construct a soil map of the United States for use by those interested in the development of agriculture. The soil survey determines what the soils are, where they are, the predominating types, and how much there is of each kind, furnishing a fundamental basis on which to establish experiments and to interpret results.

(m) SOIL-BACTERIOLOGY INVESTIGATIONS

Appropriation, 1927.....	\$33,940
Budget, 1928.....	33,940

This item has been transferred from the Bureau of Plant Industry without change, except that the words "and plant nutrition," following the words "soil-bacteriology" in the first line, have been omitted, and the amount reduced from \$50,720 to \$33,940. The soil-bacteriology work of the Bureau of Plant Industry, involving \$33,940, is being transferred to the Bureau of Chemistry and Soils incident to the reorganization of the chemistry and soils research activities of the Department. The work on 'plant nutrition', involving \$16,780, is being retained in the Bureau of Plant Industry.

Work Done Under Appropriation.

Experiments with pure cultures of legume bacteria are carried on throughout the United States. Commercial cultures for legume inoculation are inspected for the purpose of determining those of inferior quality. Rotation experiments are conducted in the field and in the greenhouses at Arlington Farm to determine whether the nitrogen balance of the soil can be maintained without using chemical fertilizers.

(n) SOIL FERTILITY INVESTIGATIONS.

Appropriation, 1927.....	\$62,000
Budget, 1928.....	<u>67,000</u>
Increase.....	5,000

This item is transferred from the Bureau of Plant Industry without change of language. There is an increase of \$5,000 in the amount of the item for studies of concentrated fertilizers. The use of concentrated fertilizer salts and their mixtures is being advocated in the United States. A great many farmers and other organizations are becoming interested in, and are seeking reliable information about the use of such highly concentrated materials. The manufacture of synthetic nitrogen salts has reached a successful commercial stage. In 1925, for example, the production of these synthetic salts was at least one-half of the world's supply of fixed nitrogen, competing with nitrate of soda and sulphate of ammonia, combines. German chemical ingenuity has also enabled that country to produce double salts containing both ammoniacal and nitric nitrogen, potash and nitrogen or phosphoric acid and nitrogen. No doubt, individual salts containing all of these fertilizer constituents will be produced. With potash salts of high concentration, such as high-grade muriate and sulphate containing 50 per cent or more actual potash, in prospect, and with an increased development of commercial methods for the production of high-grade acid phosphate, almost certain, there will be available all classes of concentrated salts needed for the production of concentrated fertilizer mixtures. It will be essential to determine safe methods of applying such mixtures to the soil and to find out how they affect germination, early growth, and yields under different soil and climatic conditions. With the additional funds requested for 1928,

a campaign of field work, and any necessary laboratory or greenhouse investigations, can be so organized as to apply to prominent soil types and include our leading crops.

Work Done Under Appropriation.

The duties and functions of the Office of Soil Fertility Investigations comprise a fundamental study of the biochemical relationships existing between plants, soils, and fertilizers. The work is carried on through field experiments and laboratory and greenhouse studies. It includes the testing of many fertilizer ratios or formulas in order to ascertain the ratio best suited for profitable crop production in particular regions. Comparative values of the various nitrogen carriers, and phosphate carriers as used in commercial fertilizers are under investigation in order to ascertain the particular carriers best suited for any specific crop or soil.

(o) ADMINISTRATIVE EXPENSES.

Appropriation, 1927.....	\$4,000
Budget, 1928.....	<u>3,800</u>
Decrease.....	200

Work Done Under Appropriation.

This item covers the general overhead expenses of the bureau, such as telephone, telegraph, freight, and express charges, stationery, and miscellaneous office supplies, etc.

(p) LIMITATION ON PERSONAL SERVICES IN THE DISTRICT OF COLUMBIA.

The figures making up the limitation on personal services for 1927 and 1928 in the District of Columbia are as follows:

	<u>1927</u>	<u>1928</u>
Bureau of Soils.....	\$507,000	\$498,640
From items transferred from Bureau of Chemistry.....	310,129	306,454
From items transferred from Bureau of Plant Industry.....	<u>74,200</u>	<u>74,200</u>
Total.....	\$891,329	\$879,294
Decrease,	\$12,035	

BUREAU OF ENTOMOLOGY

(a) SALARIES.

Appropriation, 1927	\$136,438
Budget, 1928	<u>134,000</u>
Decrease.....	2,438

Work Done under Appropriation

This appropriation provides for the salaries of the administrative and clerical personnel of the Bureau of Entomology.

(b) INTRODUCTORY PARAGRAPH, BUREAU OF ENTOMOLOGY.

Change in Language

The language of the introductory paragraph has been amended by inserting therein after the word "Columbia" the following clause and proviso: "and including not to exceed \$3,000 for the erection of insectaries and other buildings: Provided, That the cost of any such building erected shall not exceed \$1,500; for": The Bureau has found it necessary at various times to erect small buildings for insect breeding experiments under local conditions at the field stations where the investigations are conducted. Other buildings of this type are used for the rearing of parasites of injurious insects that have been shipped from abroad at considerable expense. These parasites are often received during the winter months and must be kept at even temperatures until the time for their breeding and distribution for colonizing purposes. Considerable difficulty has been experienced in the settlement of accounts for the erection of these insectaries because there is no specific authority for the erection of buildings from the general expense appropriation. Additional insectaries will be needed from time to time and it will become necessary to replace some of the insectaries that were erected a number of years ago. The language has, therefore, been amended so as to include the required authority.

(c) DECIDUOUS FRUIT INSECTS.

Appropriation, 1927	\$114,500
Budget, 1928	<u>120,000</u>
Increase.....	5,500

There is an apparent increase of \$5,500 in this item, but taking into consideration the transfer of \$4,225 from this subappropriation to that "for investigations, identification, and systematic classification of miscellaneous insects", to effect a proper distribution of Washington Salaries, there is an actual increase of \$9,725 in funds available for carrying out the activities under this item. This increase will be used for investigational work in connection with the arsenical spray residue situation. During the last few years a very serious condition has developed in that an increasing amount of fruit, especially apples and pears, has appeared on our foreign and domestic markets with an objectionable amount of arsenical spray residue. The 1925 apple crop, following a season of unusual insect abundance, was especially unsatisfactory from this standpoint. Officials charged with the enforcement of the Food and Drugs Act found it necessary on frequent occasions to embargo large shipments

of apples moving in interstate commerce, and apples exported to England were the subject of much unfavorable comment and regulation. The correction of this situation is of the utmost importance in preserving our very large apple and pear growing industry. It must be attacked partly in the orchard and partly in the laboratory in the development of substitutes, if possible, for arsenical sprays. With the funds indicated it is proposed to investigate the situation as thoroughly as possible, with the view to developing means of obviating objectionable amounts of arsenic on fruits appearing on our foreign and domestic markets.

Work Done Under Appropriation.

The work being carried out with funds available under the above appropriation consists of detailed life history studies of the more important insects attacking apples, peaches, grapes, and nuts, such as the codling moth, apple maggot, plum curculio, peach tree borer, grape leafhopper, grape berry moth, grape root worm, pecan nut case bearer, pecan weevil, etc. Large-scale experimental work in orchards and vineyards with different insecticides, to determine best and most economical means of controlling the insects under investigation, is also carried out. The results of these investigations are published in the form of bulletins, circulars, etc., which are distributed to interested growers and others.

(d) CEREAL AND FORAGE INSECTS.

Appropriation, 1927	\$200,835
Budget, 1928	<u>200,000</u>
Decrease.....	835

There is an apparent decrease of \$835 in this item, but the actual decrease is only \$275, the sum of \$560 being transferred from this subappropriation to that "for investigations, identification, and systematic classification of miscellaneous insects" to offset a proper distribution of Washington Salaries.

Work Done Under Appropriation.

The principal projects on which work is now being done are:

(1) Alfalfa weevil.-- Studies of the biology and behavior of this insect are conducted in order to discover the most efficient and economical means both of artificial and biological control.

(2) Hessian fly.-- The work on this insect consists of studies of its biology and ecology and its parasitic enemies, in order to secure information regarding conditions of infestation and the measures required for its control.

(3) Chinch bug.-- This activity consists of studies of the biology and behavior of the insect, including its principal areas of distribution, in order to secure information regarding methods for regional control.

(4) Grasshoppers.-- Researches are under way on the biology and ecology of the grasshoppers important to agriculture, and surveys are being made to determine their abundance from year to year, in order to furnish advance information on necessary control work and to supply advice regarding methods of control.

(5) Forage insects.-- This project includes studies of the biology and behavior of such important insects as the alfalfa seed chalcids, the clover leaf weevils, sod webworms, clover root-borer, corn root-worms, sorghum midge, wire-worms, the sorghum head worm, etc.

(6) Cereal insects.-- Under this group are conducted studies of the biology and ecology of such important cereal insects as are not included under special projects, including jointworms affecting small grains, stem saw-flies, the corn ear-worm, corn billbugs, white grubs, larger cornstalk borer, southwestern cornstalk borer, the wheat midge, etc., for the purpose of discovering efficient means of control.

(e) SOUTHERN FIELD CROP INSECTS.

Appropriation, 1927	
(including deficiency \$15,000) ...	\$270,440
Budget, 1928	259,330
Decrease	11,110

There is a decrease of \$11,110 in the paragraph, brought about as follows:

(1) An actual decrease of \$1,510 in funds available, taking into consideration the appropriation of \$15,000 provided for the fiscal year 1927 by the Deficiency Act of July 3, 1926, for investigations of methods of control and possible eradication of the *Thurberia* (Arizona) wild cotton weevil. This weevil, which has appeared in cultivated cotton fields in Arizona, is potentially the most serious pest yet encountered in the western district. Its immediate control and ultimate eradication is of vital importance as there is danger of its spread to other cotton-growing States.

(2) An apparent decrease of \$9,600, to effect a proper distribution of Washington salaries that are now being paid from these funds. The amount of this decrease is transferred to the subappropriation "for investigations, identification, and systematic classification of miscellaneous insects" to which the salaries should be charged. This adjustment of funds will make no change in the total of the general expense appropriation.

Work Done Under Appropriation

The funds under this appropriation are being used for the investigation of insects injurious to southern field crops, including insects affecting cotton, tobacco, sugar cane, rice, etc., the cigarette beetle, and the Argentine ant. Life histories of the different pests are determined with a view to discovering the particular period in the life of each species when control methods may be most effectively employed. Experiments are likewise being conducted to determine what method of control is most effective in each case. Where none of the known methods of control prove effective, investigations are conducted for the purpose of developing new and more effective methods, including the development of new insecticides and special methods of applying them in the most effective way. Whenever an effective remedy for a destructive insect is developed or an important discovery made, the information is given to the public in the form of bulletins and statements through the public press.

(f) FOREST INSECTS.

Appropriation, 1927	\$75,000
Budget, 1928	<u>74,250</u>
Decrease	750

There is an apparent decrease of \$750 in this item, to effect a proper distribution of Washington salaries that are now being paid from these funds. The amount of this decrease is transferred to the subappropriation "for investigations, identification, and systematic classification of miscellaneous insects" to which the salaries should be charged. The adjustment of funds will make no change in the total of the general expense appropriation.

Work Done Under Appropriation.

The principal activities of the Branch of Forest Insects are:

- (1) Insects affecting forest trees.— Chiefly the study of injurious and tree-killing insects east of the Rockies. Four field stations are maintained, three of them in cooperation with the Forest Service experiment stations.
- (2) Insects affecting forest products.— This is a general project covering all insects affecting crude and finished forest products.
- (3) Shade tree and hardy shrub insects.— Consists of the dissemination of advice on the control of insects injurious to shade and ornamental trees.
- (4) Cooperative forest insect control.— Investigations of the western species of tree-killing barkbeetles and cooperation with the Forest Service, National Park Service, Office of Indian Affairs, State, and private owners, including entomological advice on the control of barkbeetle epidemics, and, when feasible, supervision of the technical features of the control operations.

(g) TRUCK CROP AND STORED PRODUCT INSECTS.

Appropriation, 1927	\$186,250
Budget, 1928	<u>176,940</u>
Decrease	9,310

There is an apparent decrease of \$9,310 in this item, to effect a proper distribution of Washington salaries that are now being paid from these funds. The amount of this decrease is transferred to the subappropriation "for investigations, identification, and classification of miscellaneous insects" to which the salaries should be charged. This adjustment of funds will make no change in the total of the general expense appropriation.

Work Done Under Appropriation

The work under this item is divided into two parts, (1) truck crop insects and (2) stored product insects.

(1) Truck crop insects.— The principal truck crop insects under investigation are the sugar beet leafhopper, sweet potato weevil, pea aphid, and wireworms, and miscellaneous insect pest of vegetable crops.

Ecological data on the multiplication and dissemination of the sugar beet leafhopper are now being collected in Washington, Idaho, and Utah, and it is hoped that the correlation of this information will make it possible to determine the factors responsible for the increase and spread of the leafhopper and thus to forecast migrations or even discover areas which would be relatively free from invasion.

Sweet-potato weevil control is being continued in Mississippi, Alabama, Georgia, and Florida. In two of the Florida test areas no weevils were found during the present season, and it is believed that the insect will soon be eradicated from these districts. These operations, aside from removing the threat of the insect from large commercial areas, have shown the usefulness of systematic cultural control in reducing the numbers of this pest, and the information thus gained will be applicable on individual farms.

Further tests for the aphidozer, a mechanical aphid collector, against the pea aphid in Wisconsin and California have shown that this machine, while promising most satisfactory results, requires several changes in order to make it useful under all conditions, and experimental work along this line is now under way.

A considerable advance has been made in the direct control of wireworms using calcium cyanide as a soil fumigant and concentrating the worms by the use of baits previous to fumigation. This work is now being developed successfully in Washington and California, the present investigations being largely along the line of cheapening this process so that it will be practicable for farm use in the protection of most crops. Other control studies include tests with poison baits for wireworms.

(2) Stored product insects.— These investigations at present are being limited to projects having for their primary object the conservation of agricultural commodities. The most important of these are: (1) Insects attacking wheat, corn, all small grains, and cereal products, including breakfast foods, the products of flour mills, bakeries, etc.; (2) weevils attacking beans and peas; (3) insects attacking dried fruits in California; (4) insects that are destructive to articles in warehouses, such as fabrics, furniture, etc.; (5) investigations into the possibilities of cold-storage temperatures in preventing losses to agricultural products in storage; (6) investigations of new and useful fumigants that may lessen the present danger that exists in the use of fumigants now recommended; and (7) a general, though necessarily limited, study of household pests such as bedbugs, cockroaches, clothes moths, etc.

(h) BEE CULTURE.

Appropriation, 1927	\$42,380
Budget, 1928	42,380

Work Done Under Appropriation.

The funds under this appropriation are being used for the study of the behavior of bees to ascertain the responses of bees to artificial and natural stimuli to the end that beekeepers may utilize to the utmost the natural habits of bees in increasing the production of wax and honey.

The field of investigation consists of (1) timing the maximum production of brood so that the maximum number of field bees will be available at a time coinciding with the beginning of the honeyflow, (2) the economic production of queenbees, (3) a study of the effect of climatic factors upon honey production with particular reference to the time when the major honey producing plants are actively secreting nectar, (4) temperature responses of bees during the active season and other effects upon apicultural practice, and (5) methods having to do with fall management of bees.

The investigation of bee diseases deals with the following problems: To reduce the enormous loss of bees occasioned by bee diseases by testing the efficacy of various cheap germicides for disinfecting contaminated apiary material; ascertaining the part that commercial shipments of honey play in the dissemination of bee diseases; investigation of the pathogenic fungi of the honeybee; the diagnosis of samples of bee diseases sent from all parts of the United States; and examination of all importations of adult bees into the United States, in accordance with the act of August 31, 1922, regulating the foreign commerce in the importation to the United States of adult honeybees.

Studies are also made of the food requirements and utilization of food by honeybees. The feeding of certain foods appears to be the cause of large annual losses. Investigations now in progress deal primarily with the metabolism of fats and carbohydrates.

Material is being constantly gathered concerning specific information about the principal honey-producing regions of the United States, but much field work is needed to collect all the data wanted.

Being without permanent field representatives, demonstration work in beekeeping is confined largely to attending important meetings and conventions where demonstrations of management or disease work are being given. Many requests to assist at meetings and demonstrations are received, and various members of the staff attend such field meetings whenever possible.

(i) TROPICAL AND SUBTROPICAL PLANT INSECTS.

Appropriation, 1927	\$71,385
Budget, 1928	76,755
Increase	5,370

There is an apparent increase of \$5,370 in this item resulting from the following:

(1) An actual increase of \$7,500 for bulb insect investigations. During the last few years the bulb-growing industry in the United States has expanded greatly as a result of the announcement by the Federal Horticultural Board in 1923 that foreign bulbs would probably be excluded by January 1, 1926. With the large number of bulbs imported and planted during this three year period, European insect pests were introduced and have become established in certain regions. It is highly important that the further spread of these pests be prevented in the United States and that bulb growers be furnished with information regarding adequate methods for their control.

(2) An apparent decrease of \$2,130, to effect a proper distribution of Washington salaries that are now being paid from these funds. The amount of this decrease is transferred to the subappropriation, "for investigations, identification, and systematic classification of miscellaneous insects" to which the salaries should be charged. This adjustment of funds will make no change in the total of the general expense appropriation.

Work Done Under Appropriation.

Under this appropriation the more important insects attacking citrus and subtropical fruits, such as scale insects, citrus thrips, fruit flies, insects attacking greenhouse plants, etc., are investigated. Life-history studies of the insects are investigated, and experimental work is carried on in citrus groves with insecticides to determine best and most economical means of controlling the pests under investigation. The results of these investigations are published in the form of bulletins, circulars, etc., which are distributed to interested growers and others. Under this subappropriation, there is also a large amount of inspection work accomplished in Hawaii and the Canal Zone as a safeguard against the introduction of the Mediterranean and other fruit flies into this country.

(j) MISCELLANEOUS INSECTS.

Appropriation, 1927	\$66,560
Budget, 1928	<u>93,135</u>
Increase	26,575

There is an apparent increase of \$26,575 in this item, but no actual increase in the total amount of the general expense appropriation as there are corresponding reductions in the other subappropriations to provide for this adjustment. For the past few years this bureau has been obliged to employ a number of specialists and technical assistants to identify and classify various orders of insects. One hundred thousand specimens of insects are received annually for determination, 22 per cent of which are from agricultural colleges and experiment stations and 55 per cent from Federal and State inspectors engaged in enforcing insect quarantine regulations. These bureau specialists are also required to arrange and classify in proper taxonomic position the vast number of insects that are deposited in the

collection housed in the National Museum. Because of the large number (about 640,000) of known insects, many of which are so similar that they must be critically compared with type standards, it is essential that the bureau specialists should continue to work on these large collections in the Museum. It has been necessary to pay the salaries of these employees from such funds as were available from the various subappropriations. The salaries should be assigned to the division of the bureau that is responsible for the identification and classification of insects, and the subappropriation for this activity should be increased by the amount now charged to the other subappropriations. This arrangement will provide for the payment of the salaries of these employees under the proper appropriation heading and make a much-desired adjustment in the distribution of personnel charges to the various subappropriations.

Work Done Under Appropriation.

Provision is made under this item for (1) investigations of insects affecting the health of man and animals, and (2) for the identification and systematic classification of miscellaneous insects.

(1) Insects affecting health of man and animals.— Studies are made of malaria mosquitoes, house flies, screw worm of cattle, cattle grub, hornfly, stable fly, and lice, mites, ticks, and fleas affecting poultry. Life histories of these different pests are determined with a view to discovering the particular period in the life of each species when control methods may be most effectively employed. Experiments are being conducted for the development of new and better methods of control or eradication, including the development of new insecticides and methods of applying them and the development of repellents and attractants. Whenever an effective remedy for a destructive insect is developed or an important discovery made, the information is given to the public in the form of bulletins and statements through the public press.

(2) Identification and classification of insects.— This work embraces taxonomic and classification studies of insects injurious and beneficial to man and the identification of material submitted by the investigators employed under other projects of the Bureau of Entomology, material intercepted at quarantine by the Federal and State inspectors, and material received from State experiment stations and other institutions engaged in entomological investigations. The project is a continuing one and ties up intimately with all of the entomological work conducted by the Federal and State governments.

(k) ADMINISTRATIVE EXPENSES.

Appropriation, 1927	\$3,880
Budget, 1928	3,880

Work Done Under Appropriation.

This fund is used for the purchase of supplies, materials, etc., required in connection with the general administration of the Bureau of Entomology.

(1) PREVENTING SPREAD OF MOTHS.

Appropriation, 1927	\$670,000
Budget, 1928	650,000
Decrease	<u>20,000</u>

Work Done Under Appropriation.

These funds are being used to prevent further spread of the gipsy moth and the brown-tail moth in this country. The extermination of the gipsy moth is sought in its present restricted area in the State of New Jersey as well as the extermination of isolated colonies in the barrier zone, a strip of territory averaging 25 to 30 miles in width along the western border of the New England States and the area in New York east of the Hudson River. This strip extends from Long Island Sound to the Canadian border. New Jersey is making annual appropriations for the work in that State and cooperates with the Department. Field work in the territory east of the barrier zone is carried on by the States concerned, the Federal control work being confined to the New Jersey area and the barrier-zone territory. New York is carrying on the work under the same plan as that conducted by the Bureau in the barrier zone and certain New York areas west of the zone, duplication of work being eliminated by cooperative planning. As the brown-tail moth area has been considerably reduced, a limited amount of work is being done on that insect.

Measures that are being employed for the natural control of the gipsy moth consist of the study of the insect in its native home in Europe and the introduction and colonization of its natural enemies in the United States. The results of the introduction of these parasites are carefully studied and experiments are conducted to develop better methods of control. The prevention of long distance spread of these insects through transportation of shipments from the infested territory to points outside is prevented through a rigid quarantine which is enforced by this activity. Material which is likely to carry the gipsy moth in any of its stages must be examined and certified as free from the insect before it is allowed to move from the infested area. Materials principally affected by this quarantine are forest products, including lumber, posts, etc., stone and quarry products, and nursery stock. Surveys are made to determine whether the insect is present in territory not known to be infested. Infested areas are treated to prevent further spread and to exterminate the insect. This work is confined to the barrier zone in New England and New York and also in New Jersey. Artificial destruction of the gipsy moth is accomplished by application of a creosote mixture to the egg clusters (one cluster averaging about 400 eggs) and the poisoning of the larvae by applying arsenical sprays to the foliage. The caterpillars die after feeding on sprayed foliage. The results of the work conducted in the barrier zone are encouraging. This area must be examined periodically and kept free from infestations. The infested area in New Jersey, which is isolated from the general infestation in New England and New York has been reduced materially.

(m) PREVENTION OF SPREAD OF EUROPEAN CORN BORER

Appropriation, 1927	\$485,000
Budget, 1928	685,000
Increase	200,000

The increase of \$200,000 is required to meet the emergency situation disclosed by recent field surveys to determine the limits of the territory at present inhabited by the European corn borer. These surveys have not only determined that this formidable pest has invaded two additional states (Indiana and West Virginia), but that it has spread to some twenty thousand square miles of additional territory in New York, Pennsylvania, West Virginia, Ohio and Michigan and that the number of borers present has greatly increased during the year, notably in parts of Michigan, Ohio and Western New York. The encroachment of the pest on the Eastern edge of the Corn Belt presents an emergency requiring the immediate establishment of quarantine lines on all principal highways at the edge of infested regions, increased scout and patrol work, the accurate delimitation of the infested areas, and the expansion of research as to the biology of the insect in newly infested areas and the establishment of parasites where needed. To meet the urgent requirements, \$50,000 should be made immediately available.

Changes in Language.

The language of the item has been changed by inserting after the amount to be appropriated "of which amount \$50,000 shall be immediately available", and by increasing from \$100,000 to \$300,000 the amount available for expenditure only when an equal amount is provided by State, county, or local agencies.

Work Done Under Appropriation.

This work has for its objective measures designed to repress the corn borer and to prevent its spread through the avenues of commerce and otherwise, principally by means of the enforcement of an interstate quarantine in cooperation with the Federal Horticultural Board and the States infested by the insect. The research work includes studies of the biology and ecology of the borer and its parasites, both in the United States and its native home in Europe, in order to discover efficient methods of control.

(n) PREVENTING SPREAD OF MEXICAN BEAN BEETLE.

Appropriation, 1927	\$32,500
Budget, 1928	32,500

Work Done Under Appropriation

The Mexican bean beetle has continued its spread during 1926, extending the infested territory both to the east and west of the present area. Its close approach to large commercial bean districts has made it necessary to re-test all the remedies which were found to be of value under southern conditions, in order that a safe and efficient remedy might be available for northern growers. At the same time a series of tests with less poisonous insecticides is now under way in an attempt to devise a treatment which might be used with safety by bean canners.

(c) PREVENTING SPREAD OF JAPANESE AND ASIATIC BEETLES.

Appropriation, 1927	\$285,000
Budget, 1928	440,000
Increase.	155,000

The increase of \$155,000 is required to meet the emergency caused by the spread of the Japanese beetle to portions of Westchester County, N. Y., Kings, Queens and Nassau counties on Long Island, and two townships in Connecticut, in addition to its spread northwestward in Pennsylvania to Harrisburg, Allentown and Easton. This infested area was increased in 1926 from 6047 to approximately 10,000 square miles, inhabited by about 7,000,000 people. A large portion of the additional funds will be used for the required inspection and certification of nursery stock from over 3,000 nurseries (formerly about 1,600) and the necessary regulation of the movement of produce in the New York market area, including the largest distributing centers for farm produce in the East. The States concerned have agreed to a plan of partial embargo on the movement of produce and it is planned effectively to police all roads to prevent the movement of contraband produce or nursery stock. To meet the urgent requirement, \$50,000 should be made immediately available. A portion of the additional funds will also be used to combat the spread of the Asiatic beetle in Connecticut and New York. The indications are that unless suppressed, it will constitute one of the more serious recently introduced insect pests.

Change in Language.

The language of the item has been changed by inserting after the amount to be appropriated: "of which amount \$50,000 shall be immediately available."

Work Done Under Appropriation.

The Japanese beetle operations are divided into (1) research and (2) control work, as follows:

(1) Research.- This project consists of thorough biologic studies of the beetle. A large amount of information concerning the life and habits of the pest is now available. Material progress has been made in the investigation of insecticides and very effective sprays and emulsions have been developed. Especial emphasis is placed on the importation of parasites from abroad, 12 different species having been found in the Orient which offer possibilities as control agents. Several of these have been introduced and one is established and doing good work.

(2) Control operations.- This project includes inspection and certification of farm products, and nursery and florist stock. Sweet corn and beans are the two principal crops on which the beetles are likely to be carried out of the infested area, and these are carefully inspected before being permitted to leave quarantined territory. While little difficulty is experienced in the movement of deciduous nursery stock shipped without soil around the roots, all evergreen and similar stock must be thoroughly treated with carbon bisulphide emulsion for destruction of grubs in the soil before being permitted to move. To maintain the quarantine line, extensive scouting to determine the spread of the beetle is done during the period of its flight from June to October.

BUREAU OF BIOLOGICAL SURVEY.

71

(a) SALARIES.

Appropriation, 1927	\$104,000
Budget, 1928	104,000

Work Done Under Appropriation.

This appropriation provides the larger part of the compensation of the general administrative and clerical personnel of the bureau in Washington.

(b) MAINTENANCE OF MAMMAL AND BIRD RESERVATIONS.

Appropriation, 1927	\$46,000
Budget, 1928	50,000
Increase	<u>4,000</u>

The increase of \$4,000 under this item will provide for much-needed maintenance expenses on the National Bison Range, in Montana, and the Winter Elk Refuge, in Wyoming, which can not be met from regular funds. The appropriations during the past several years have been inadequate for the upkeep of the reservations and the safeguarding of the animals and property interests thereon. Of the increase recommended \$2,000 will be used on the National Bison Range to replace or repair sections of the big-game fences. The remaining \$2,000 will be used on the Winter Elk Refuge, in Wyoming, where ten miles of fence has been standing for over fifteen years and is in great need of replacement. This amount will make it possible to replace approximately one-half of the fence during the fiscal year 1928.

Work Done Under Appropriation.

The bureau supervises 70 Federal big-game and bird reservations and administers and maintains warden forces upon the more important of these reserves. The five big-game refuges are (1) the Winter Elk Refuge at Jackson Hole, Wyoming, where a large amount of hay is raised annually, but during severe winters additional quantities need to be purchased to feed the elk which come to the refuge each winter, sometimes to the number of 8000, and which would otherwise starve; (2) the Montana National Bison Range; (3) the Wind Cave National Game Preserve, South Dakota; (4) The Sully's Hill National Game Preserve, North Dakota; and (5) the Niobrara Reservation, Nebraska, where feed for buffalo and other big-game animals under fence is raised and sometimes purchased. The administration and maintenance of these refuges includes construction and upkeep of necessary buildings, fences, roads, dams, etc. National reservations are stocked at various times with big game.

(c) ECONOMIC INVESTIGATIONS.

(Food Habits of Birds and Other Animals, Destruction of Rodents and Predatory Animals, Etc.)

Appropriation, 1927	\$533,290
Budget, 1928	533,290

Work in connection with the economic investigations of the Bureau of Biological Survey may appropriately be classified as investigational and service to the public. Under investigational two distinct kinds of work are conducted: (1) Investigation through field observation and stomach examination of the food habits of birds and other animals to determine their economic relations to agriculture, horticulture, forestry, animal husbandry, and wild game, and thus provide a rational basis for the protection of the useful species and the control or destruction of the harmful. (2) At the bureau's experimental fur farm at Saratoga Springs, N.Y., and at privately owned fur ranches studies are made of methods for feeding, breeding, and handling fur-bearing animals in captivity, and of the diseases affecting these animals. In cooperation with organizations of fur producers and dealers investigations are made with reference to the production of fur and of the fur industry.

The bulk of this appropriation is expended in serving the public through the development of practical methods for the control or eradication of injurious rodents and predatory animals, and the demonstration of these methods to farmers, stockmen, orchardists, and others interested in the destruction of these animals. Extensive campaigns on the national forests in the West and on other areas and in local communities are carried on for the wholesale destruction of rodents and predatory animals. This work is conducted by trained men who are stationed in rodent and predatory animal infested States and who cooperate with State and county officials, associations of stockmen and farmers, and individuals. These cooperative agencies, in addition to the individual service rendered, contribute to the work nearly twice the amount of money expended by the Federal Government.

(d) BIOLOGICAL INVESTIGATIONS.

Appropriation, 1927	\$28,730
Budget, 1928	<u>28,730</u>

Work Done Under Appropriation.

The scientific work conducted by the Biological Investigations Division is the fundamental basis for most of the bureau's activities. It includes biological surveys of States; technical laboratory studies on the classification of North American birds and mammals; studies the habits of mammals in relation to crops and forests, conducted chiefly from stations at Tucson, Ariz., and Puyallup, Wash. The division investigates the habits of beaver and beaver farming; cooperates with the State of Louisiana in the study of the muskrat as a fur-bearer; conducts field investigations of big game mammals; studies the distribution and migration of birds-- through bird censuses and banding of birds by 1,200 cooperators as a means of securing data on seasonal and local movements of birds.

(e) PROTECTION OF MIGRATORY BIRDS.

Appropriation, 1927	\$149,345
Budget, 1928	<u>145,000</u>
Decrease	4,345

This project consists of the enforcement of the Migratory Bird Treaty and Lacey Acts by maintaining a warden service throughout the States to the limit of available funds, and by cooperating with State and local authorities in the work; supervision of importations of foreign birds and other animals into the United States, including inspection service at ports of entry, to prevent the introduction into this country of injurious species; and the assembling of data and publication of the annual game-law bulletin, laws relating to fur-bearing animals, game-law poster, and directory of game-protection officials.

(f) REINDEER, GAME, AND FUR BEARERS IN ALASKA.

Appropriation, 1927	\$90,000
Budget, 1928	<u>100,000</u>
Increase	10,000

There is a recommended increase of \$10,000 in this appropriation to provide funds for the Alaska Game Commission to increase their warden force and provide for other expenses which are made necessary by the new Alaska Game Law. During the past year the Commission has carefully studied the situation and finds that in order to effectively enforce the game law additional wardens are necessary, as there are now vast areas of completely unprotected territory in which through the use of poisons for fur-bearing animals and the unrestricted slaughter of game the existence of these extremely valuable assets is jeopardized. The game and fur-bearing animals constitute one of the most important resources of the Territory, without which enormous areas would become uninhabitable both to natives and to white men, and the conservation and upbuilding of the game and fur resources of the Territory are therefore most vital.

Work Done Under Appropriation.

From headquarters at Fairbanks, Alaska, are conducted investigations, experiments, and demonstrations for improving and increasing the reindeer industry in Alaska, and the results attained are made known to reindeer owners who are benefited by adopting the improved methods. This Department cooperates with the Bureau of Education in connection with the reindeer under the latter's control.

From headquarters at Juneau, Alaska, the Alaska game law and regulations protecting game and land fur-bearing animals are enforced through the medium of the Alaska Game Commission, which maintains a warden service and operates patrol boats within the Territory.

(g) ADMINISTRATIVE EXPENSES.

Appropriation, 1927	\$11,000
Budget, 1928	<u>11,000</u>

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This item provides in part for the payment of general administrative salaries and expenses of the Bureau in Washington.

(h) UPPER MISSISSIPPI RIVER REFUGE

Appropriation, 1927	\$25,000
Budget, 1928	<u>20,000</u>
Increase	5,000

The recommended increase of \$5,000 is necessary to meet the regular administrative expenses of the Upper Mississippi River Refuge for 1928. The original appropriation for administration was \$25,000 for the fiscal year 1926, but that for the fiscal year 1927 was only \$20,000, as a balance from the original appropriation was brought over for expenditure in 1927 due to delay in starting work on the project. The \$20,000 appropriated for 1927 plus the balance from 1926 will be required during the present fiscal year and \$25,000 will be needed for 1928 to meet the expenditures during that year.

Work Done Under Appropriation.

This appropriation is used for the acquisition of land and land and water areas to be set apart as a wild life and fish refuge along the upper Mississippi River, as authorized by the Act of June 7, 1924, and to cover the necessary administrative expenses incident to the purchase of the land. The work is being conducted from headquarters at Winona, Minnesota, and the proposed refuge will include areas in the States of Minnesota, Iowa, Wisconsin, and Illinois. Maintenance of the refuge will follow its establishment.

(i) LIMITATION ON PERSONAL SERVICES IN THE DISTRICT OF COLUMBIA

Change in Language

The language of paragraph limiting the amount to be expended for personal services in the District of Columbia has been amended by inserting after the word "for" the word "departmental." The insertion of this word is necessary in order that the District of Columbia salary limitation may apply only to the departmental force, and permit the employment of field employees in the District of Columbia when necessary to carry on the field activities.

BUREAU OF PUBLIC ROADS

(a) SALARIES.

Appropriation, 1927 ...	\$118,558
Budget, 1928	<u>118,000</u>
Decrease	558

Work Done Under Appropriation.

From this appropriation are paid the salaries of employees engaged in the general administrative work of the Bureau and in administrative work in connection with individual projects.

(b) ROAD MANAGEMENT.

Appropriation, 1927	\$55,000
Budget, 1928	<u>52,000</u>
Decrease	3,000

Work Done Under Appropriation.

The work under this appropriation is carried forward under two major projects:

(1) Highway transportation surveys: These surveys are made to determine the present and expected future use of highway systems, which information forms the basis of planning programs of highway improvement. Field work is in progress (October 1926) in New Hampshire and Vermont, and report is being completed covering survey in Ohio.

(2) Highway finance: To determine equitable principles of highway finance.

(c) ROAD BUILDING AND MAINTENANCE.

Appropriation, 1927	\$82,951
Budget, 1928	<u>80,000</u>
Decrease	2,951

Work Done Under Appropriation.

This fund provides for the following principal activities:

(1) Construction cost studies: Time studies of the various operations involved in the movement of earth are being made on a number of road projects for the purpose of determining the results of good, average, and poor management and the use of the collected data to speed up operations and so reduce construction costs.

(2) Maintenance studies: Studies of highway maintenance methods and costs on low type roads for the purpose of obtaining the average cost of the various units of maintenance work and a comparison of results and costs by different methods.

(3) Experiments in use of local materials: Studies are being continued on experimental road projects in which various treatments are given low cost roads to improve their condition for traffic and eliminate dust.

(4) Experimental Highways: Experimental roads constructed by the Bureau of Public Roads in the vicinity of Washington are being maintained.

(d) AGRICULTURAL ENGINEERING

Appropriation, 1927	\$207,170
Budget, 1928	207,170

Work Done Under Appropriation.

The agricultural engineering activities of the Bureau of Public Roads are carried forward under three major subdivisions: (1) Irrigation, (2) Drainage, and (3) farm structures and mechanical problems. The work is largely of a research character and, in general, is conducted in cooperation with colleges or other State agencies.

(1) Irrigation: The investigations relating to irrigation have for their purpose the securing of information which will aid in bringing about a more economical use of the water supplies and the development of improvements in the methods of irrigating. The work involves the pursuit of specific lines of inquiry conducted at advantageous points. Most of the projects are of a character that require a continuation over two or more years before conclusive results can be secured. A large part of the work is carried on in cooperation with experiment stations and other State institutions.

(2) Drainage: The drainage work consists in carrying on lines of research that develop basic data and facts that are essential to the design of efficient drainage works, ranging from the tile drainage system of the individual farmer's field to large community projects involving swamp areas and overflowed lands and organized and carried out under the State drainage laws. These problems concern the size and locations of drains under various conditions, the correction and prevention of erosion, the question of waterlogging due to irrigation, the durability of drain tile. A large part of this work is done in formal cooperation with the various State institutions and the project require continuation over a number of years.

(3) Farm Structures and Mechanical Problems: The work on farm structures at present consists of the development of typical plans for farm buildings for various purposes based upon studies of the requirements and is intended to increase efficiency of operation as well as reduce cost of construction through elimination of waste space and materials. There is a very heavy loss due to shrinkage in potatoes stored in trackside warehouses due to improper ventilation and insulation. Cooperative experiments are now under way to

determine the fundamental requirements and the best methods of preventing these losses. Farm house heating, sewerage and water supply are also phases of the farm structural problem to which considerable attention is being devoted. In cooperation with the Bureau of Entomology, equipment for the dusting of cotton with calcium arsenate, both from the ground and from airplanes, for the destruction of the boll weevil is being developed. Investigations are in progress to determine what modifications may be made in existing distributors or what new designs may be necessary to properly handle commercial fertilizers. In cooperation with the Bureau of Plant Industry, investigations are being made of engineering problems in the design and operation of storage buildings, cold storage and precooling plants, and refrigerator cars. The Division is cooperating with State and other organizations in investigating the application of electric power to agriculture. In cooperation with the American Society of Agricultural Engineers and other organizations, a survey of the whole field of research as regards farm operating equipment is in progress.

(e) SURPLUS WAR EXPLOSIVES.

Authorization, 1927	\$15,000
Budget, 1928	15,000

This paragraph carries no appropriation. It merely authorizes the Secretary of Agriculture to expend not to exceed \$15,000 of the administrative fund provided by the Federal Aid Road Act of July 11, 1916, as amended, for supervising the preparation, distribution, and use of surplus war explosives made available by the War Department for use in clearing stumps and stones from agricultural lands, independently or in cooperation with agricultural colleges and other agencies. Since 1921 approximately 45,000,000 pounds of surplus war explosives have been distributed to farmers for clearing their lands of stumps and stones. All expenditures made under this authorization are reimbursed by the parties receiving explosives.

NOTE.-- In connection with the Bureau of Public Roads, also see "Miscellaneous Item" for "Federal Aid Highway System," (page).

BUREAU OF AGRICULTURAL ECONOMICS.

(a) SALARIES.

Appropriation, 1927	\$1,150,000
Budget, 1928	<u>1,140,000</u>
Decrease	10,000

Work Done Under Appropriation.

This appropriation provides for the salaries of the Chief of Bureau of Agricultural Economics and of clerical and subclerical employees both in Washington and in the field. These employees are engaged on all of the various lines of work of the bureau.

(b) GENERAL ADMINISTRATIVE EXPENSES.

Appropriation, 1927	\$36,613
Budget, 1928	<u>36,500</u>
Decrease	113

Work Done Under Appropriation.

This appropriation covers the miscellaneous expenses of the Office of the Chief of Bureau and of the various sections which serve the whole Bureau, such as Personnel Office, Audits and Accounts, Mails and Files, Stenographic, Photographic, Property and Supplies sections, and others.

(c) FARM MANAGEMENT AND PRACTICE.

Appropriation, 1927	\$261,586
Budget, 1928	261,586

Work Done Under Appropriation.

This appropriation covers studies of farm management and farm organization problems, costs of production, farm credit, insurance, taxation, farmers' return for capital and labor, farm ownership and tenancy, farm labor, land settlement and utilization, and farm life problems. Recommendations are made for crop and livestock adjustments based upon close study of farm organization and costs and of changing agricultural conditions. Farmers are assisted in keeping records and accounts of their operations. Studies are made with respect to the use value of land, the classification of lands yet to be brought under cultivation, and the methods of development which will result in the proper use of each class of land. Assistance is given to farmers in obtaining credit, and special studies are being made with regard to farm insurance problems. Farm taxation is being studied in an effort to find means of relieving agriculture of a part of its present heavy burden. The greater part of the work under this appropriation is carried on in close cooperation with State agencies and with other departments of the Government.

(d) MARKETING AND DISTRIBUTING FARM PRODUCTS.

Appropriation, 1927	\$525,988
Budget, 1928	<u>480,000</u>
Decrease	45,988

There is an apparent decrease of \$45,988 in this item, but taking into consideration the transfer of \$57,000 to the new item for "Cooperative Marketing from this subappropriation (under which this work was formerly done), there is an actual increase of \$11,012 over the funds available for other activities here under.

Of this increase \$5,000 will be used to carry out the proposed hide improvement campaign as it affects this bureau. This involves the investigation preparation and promulgation of uniform standards for the market classes and grades of hides, skins and pelts, the investigation of prevailing unsatisfactory methods and practices of marketing country hides and skins.

An amount of \$3,000 will be used for research work in the production, handling, and marketing of tobacco, with especial reference to trends of consumption, and the outlook for tobacco growing.

An amount of \$3,012 will be used to supplement the work on cotton seed standardization and marketing. Tentative grades for cotton seed have been formulated, but before establishing the grades as the official standards it will be necessary to test them in practical experience. It will be necessary also to exercise a general supervision over the application of the grades by the industry.

Change in Language.

The language of this paragraph has been amended by adding, at the end thereof, the following proviso: "Provided, That practical forms of the grades recommended or promulgated by the Secretary for wool and mohair may be sold under such rules and regulations as he may prescribe, and the receipts derived therefrom deposited in the Treasury to the credit of Miscellaneous Receipts". The practical forms for wool and mohair grades have been distributed without charge for several years as a part of the educational and demonstrational work of the bureau. It is believed that these standards have now become sufficiently well established to warrant making a charge for copies, and the language of the paragraph is amended accordingly. The proceeds from the sale of these standards may result in the receipt of from \$1,000 to \$1,500 per annum.

Work Done Under Appropriation.

Under this appropriation are conducted the research projects connected with the marketing of farm products. The work includes the preparation of standards for farm products and conferences with the trade in regard to their use. The methods of handling, grading, packing, shipping, and marketing farm products are studied and recommendations made for improvements. Numerous laboratory problems are under way, such as spinning tests of various types and grades of cotton, and milling, baking, and chemical studies to determine the intrinsic value of wheat. All available facts with regard to the production

of and prospective demand for farm products are published periodically. Studies of agricultural cooperation are carried on as well as a number of projects in cooperation with State agencies covering various marketing problems. Studies of costs and margins are also conducted.

(e) CROP AND LIVESTOCK ESTIMATES.

Appropriation, 1927	\$468,515
Budget, 1928	468,515

Work Done Under Appropriation.

The work under this paragraph falls under two heads, (1) the regular periodical agricultural statistics covering acreage, condition, yield, etc., and (2) statistics relating to competition in and demand for agricultural products in foreign countries.

(1) Crop and livestock estimates.- This work covers 74 crops in addition to the different classes of livestock. The work is roughly divided into the following lines: Estimates of acreage; the making of quantitative forecasts during the growing season of probable production; and in December of each year the making of final estimates of the production for the year and the gross value of the agricultural crops. The information is gathered through State statisticians, county reporters, township reporters, and a very large number of correspondents. There are more than 300,000 voluntary reporters who send information to the Department without cost to the Government. The information is disseminated through the Department's State statisticians, county reporters, the market news service, and the press.

A new development of this work has been the intention-to-plant reports. In these reports information is gathered, before the farmer puts in his crops, as to the probable trend of acreage. This information is made public in time to permit the farmer to revise his production plans. Another feature of the work are the pig surveys, which are made twice a year and cover intention to breed. When the results of these surveys are compiled and the forecasts made of the prospective supply of hogs based on these intentions, it has been noted that decided modifications have been made in farmers' plans, and gluts and shortages have thereby been prevented.

(2) Foreign competition and demand.-Approximately \$65,000 of the funds made available under this paragraph are specifically set aside, by proviso, for collecting and disseminating to American producers, importers, exporters, and other interested persons information relative to the world supply of and need for American agricultural products, marketing methods, conditions, price and other factors, a knowledge of which is necessary to the advantageous disposition of such products in foreign countries. This information is gathered through representatives of the Bureau of Agricultural Economics stationed in foreign countries, through the Consular Service, the International Institute of Agriculture at Rome, attaches of the Department of Commerce, and by direct communications with foreign governments. This information supplements the data collected by the Division of Crop and Livestock Estimates, and enables the Bureau to furnish the American public with information regarding the world supply of and demand for agricultural products.

(f) MARKET INSPECTION OF PERISHABLE FARM PRODUCTS.

Appropriation, 1927	\$353,755
Budget, 1928	<u>365,000</u>
Increase	11,245

There is an increase in this item of \$11,245 which will be used in employing two additional inspectors for fruits and vegetables, one additional inspector for eggs and one for meats. The demand for inspection of all of these products far exceeds the ability of the Bureau to furnish the service. These additional inspectors will be used at points where the requests for inspections are most numerous.

Work Done Under Appropriation.

This service enables any interested party to secure at any point where the service is maintained an inspection by a representative of the Department of Agriculture and a certificate, which is prima facie evidence in all courts of the United States as to the statements therein contained. These certificates cover the class, quality, and/or condition of agricultural products offered for shipment, or received in interstate commerce. The inspection service has been inaugurated on fruits, vegetables, butter, cheese, eggs, meats, and hay. The service is, in a large measure, self-supporting as fees are collected and turned into the Treasury as miscellaneous receipts.

(g) MARKET NEWS SERVICE.

Appropriation, 1927	\$775,150
Budget, 1928	<u>775,150</u>

Work Done Under Appropriation.

This item covers the collection and dissemination of market information by telegraph, telephone, radio, and other means. Information regarding the market supply, commercial movement, location, quality, condition, market price, etc., on all the principal agricultural products is collected and compiled by representatives of this Bureau and given the widest possible publicity. This furnishes a guide to producers and shippers as to markets where the best demand exists for their products. The leased wire service extends to Boston, in the North; to Jacksonville, Florida, in the Southeast; to Chicago, Minneapolis, St. Paul, Kansas City, and Omaha; west to San Francisco; and south to Fort Worth and San Antonio, Texas, touching various points between these cities. Temporary field stations are operated in producing districts during the movement of important crops, and information is furnished to various points in the field by commercial wires and radio.

(h) COOPERATIVE MARKETING.

Appropriation, 1927(deficiency act) ..	\$150,000
Budget, 1928	<u>207,000</u>
Increase	57,000

This is a new item, involving an apparent increase of \$57,000.

However, as the amount requested for 1928 is made up of \$57,000 now being used for this work, which is transferred from the present appropriation for "Marketing and Distributing Farm Products" with a corresponding decrease in that item, and as the remaining \$150,000 of the amount requested is merely a continuation of the \$150,000 provided for 1927 by the Deficiency Act of July 3, 1926, there is no actual increase in the appropriation requested over that provided for 1927. The amount recommended will be required to carry into effect during the fiscal year 1928 the Cooperative Marketing Act, approved July 2, 1926.

Work Done Under Appropriation.

The Act of July 2, 1926, creating a division of cooperative marketing requires the Department of Agriculture to provide for the acquisition and dissemination of information pertaining to cooperation; to promote the knowledge of cooperative principles and practices; to provide for the calling of advisers to counsel with the Secretary of Agriculture on cooperative activities; and to authorize cooperative associations to acquire, interpret and disseminate crop and market information.

(i) ENFORCEMENT OF COTTON FUTURES AND COTTON STANDARDS ACTS.

Appropriation, 1927.....	\$188,500
Budget, 1928	188,500

Work Done Under Appropriation.

Under both of these Acts the Department of Agriculture is authorized to promulgate standards for cotton. The Cotton Futures Act provides for the regulation of the cotton future exchanges and for the classification of cotton delivered on future contracts. Under this Act supervision is maintained over designated spot markets, and a cotton price quotation service is maintained. In addition to furnishing authentic information of prices these quotations serve as a basis for the settlement for cotton, other than middling, delivered on future contracts.

The Cotton Standards Act makes mandatory the use of the official cotton standards in interstate and foreign commerce, provides for the classification of spot cotton by representatives of the Department of Agriculture, and for the licensing of cotton classers. Universal cotton standards have been promulgated under this Act and these have been adopted by the principal foreign cotton exchanges.

(j) ENFORCEMENT OF GRAIN STANDARDS ACT.

Appropriation, 1927	\$598,940
Budget, 1928	610,000
Increase	11,060

There is an increase of \$11,060 which will be used to cover the greatly increased activities under the grain standards Act.

During the past seven years this Department has been under constant pressure from producers and dealers in this country and from foreign buyers of American grain crops, to establish Federal standards for all grains. During this period Federal standards for rye, grain sorghums, feed oats, mixed feed oats and barley have been established which in addition to the standards for shelled corn, wheat and oats established prior to 1921, have increased enormously the Federal supervision of inspections under these standards on interstate and foreign grain shipments. The number of appeals from grades assigned by licensed inspectors has also quadrupled during this period.

Work Done Under Appropriation.

This Act requires the Department of Agriculture to promulgate standards for grain, the use of which is mandatory in interstate commerce, and to supervise the inspection of such grain by licensed inspectors. This is a very heavy piece of regulatory work, and constant vigilance must be exercised by representatives of the Department in order to prevent violations of the law. In addition to the supervision of inspection, violations of the law, such as fraudulent loadings of cars, etc., are detected and penalties imposed.

(k) ADMINISTRATION OF WAREHOUSE ACT.

Appropriation, 1927	\$205,060
Budget, 1928	<u>220,000</u>
Increase	14,940

There is an increase in this item of \$14,940 which will be used to cover the additional expense involved in placing canned foods and cotton seed under the provisions of the Warehouse Act. In many sections the canned foods industry is confronted with a serious condition at the present time and many requests have been received urging the Department to place canned foods on the eligible list for storage under the law so as to aid in the proper financing of canned fruits and vegetables. The inclusion of canned foods under this Act will be helpful in regulating the flow of the products to market, which is greatly to be desired. Additional funds are needed to carry out the necessary inspections of warehouses applying for Federal licenses and to supervise such warehouses after licenses are granted.

Additional funds are necessary also in connection with the warehousing of cotton seed. A number of bankers and representatives of the cottonseed industry recently met with the Federal Reserve Board with a view to having acceptance paper covering cottonseed made eligible for rediscount with the Federal Reserve Banks. The Federal Reserve Board on August 23 placed cottonseed on the eligible list on condition that the product is stored in warehouses and operated under the provisions of the United States Warehouse Act. A large amount of work will develop upon the Bureau in connection with the licensing of warehouses for cotton seed.

Work Done Under Appropriation.

Under this Act the Department of Agriculture inspects warehouses for the storage of certain farm products, and issues licenses to warehousemen who comply with the provisions of the law. A continuous check is kept upon the operation of

the licensed warehouses. The main purposes of the Warehouse Act are to safeguard the storage of farm products and to furnish a warehouse receipt which will be acceptable as collateral for loans and thus furnish the farmer with a means of securing credit as an aid to the orderly marketing of his crop. Bankers have strongly endorsed the work of the Department under this Act, and the licensed warehouse receipt is being universally accepted as collateral. The original Act covered only cotton, grain, wool, and tobacco. Under a subsequent amendment warehouses may now be licensed for the storage of other agricultural products, and regulations under the Act have been extended to cover farmers' stock of peanuts, late crop of potatoes, broomcorn, dry beans, dried fruits, and sirups, both cane and maple and canned foods and cotton seed.

(1) ENFORCEMENT OF STANDARD CONTAINER ACT.

Appropriation, 1927	\$5,000
Budget, 1928	5,000

Work Done Under Appropriation.

This is a regulatory Act whose administration is carried on largely through educational work with package manufacturing concerns. The law provides for standard specifications for climax baskets and baskets and containers for small fruits, berries, etc. Manufacturers are manifesting an increasing desire to cooperate with the Department in securing the enforcement of the law and voluntarily submit samples of the containers which they intend to manufacture. A very large number of sample containers are tested and the manufacturers notified of changes which are necessary to bring such containers within the provisions of the Act.

(n) COMPLETION OF WOOL WORK.

Appropriation, 1927	\$6,290
Budget, 1928	3,000
Decrease	3,290

Work Done Under Appropriation.

This work transferred from the War Industries Board to the Department of Agriculture by Executive order of December 31, 1918, provides for the collection from dealers and return to growers of excess profits resulting from the sale of the wool clip of 1918. It has been ascertained by audits of the books of dealers that total excess profits of \$1,512,040.76 were made on the 1918 season's wool operations. Of this amount \$756,519.42 has been collected and the bulk of the remainder is tied up in litigation. An amount of \$240,000 remains undistributed in the Treasury as it is impossible to ascertain the growers to whom it is due. This amount and probably considerably more will eventually revert to the Federal Treasury. Completion of the work is now awaiting court decisions.

(n) OPERATION OF CENTER MARKET.

Appropriation, 1927	\$171,000
Budget, 1928	171,000

Work Done Under Appropriation.

Under an Act approved March 4, 1921, Center Market, in Washington, D. C., was taken over by the Federal Government and its operation placed under the Department of Agriculture. The Department has full control of this project and leases the stalls, operates the cold storage plants, etc. Many improvements have been made to the plant, and a substantial revenue is annually returned to the Federal Treasury.

BUREAU OF HOME ECONOMICS.

(a) SALARIES

Appropriation, 1927	\$27,244
Budget, 1928	27,244

Work Done under Appropriation.

This appropriation in general, takes care of most of the administrative and clerical employees of the bureau.

(b) GENERAL EXPENSES.

Appropriation, 1927	\$100,000
Budget, 1928	100,000

Work Done Under Appropriation.

Most of the scientific personnel of the bureau is paid from this appropriation. The bureau maintains no field stations, the investigational work in home economics being performed in Washington and the results disseminated in the form of bulletins and other publications. The principal projects under way include studies of food composition, nutritive value, methods of preparation, and use, in order to furnish information in a practical form for the more effective utilization of these products. Special emphasis is being given now to dietary studies, problems of feeding young children, vitamin and mineral content of food, home canning methods, and the extension of the use of soft wheat flour. Economic studies are also carried on in order to furnish information to guide the housewife in wise buying. An effort is being made to determine what is an adequate standard of living for the farm family, these studies involving detailed analyses of expenditures for food and clothing and a special investigation of household accounts and their use in planning a household budget. Since so large a proportion of the family resources in time and money goes to clothing, special studies are being made to furnish information as to wise choice, care, and construction of clothing.

ENFORCEMENT OF THE INSECTICIDE ACT

All of the language for this purpose has been eliminated, with the exception of the second paragraph under the caption "General Expenses, Enforcement of the Insecticide Act," which has been transferred to the proposed new Food, Drug and Insecticide Administration.

FEDERAL HORTICULTURAL BOARD.

(a) SALARIES

Appropriation, 1927.....	\$58,510
Budget, 1928.....	58,510

Work Done Under Appropriation.

This appropriation provides for the payment of salaries of the personnel engaged in administrative work of the Board under its several appropriations.

(b) ENFORCEMENT OF PLANT QUARANTINE ACT.

Appropriation, 1927.....	\$425,000
Budget, 1928.....	450,000
Increase.....	25,000

The increase of \$25,000 will be used for furnishing additional personnel for parts undermanned and opening new stations with expenses pertinent thereto and the making of needed repairs on fumigation houses at Mexican Border ports.

Work Done under Appropriation.

These funds provide for the payment of salaries and miscellaneous expenses in connection with the enforcement of the plant quarantine act, the purpose of which is to regulate the importation of nursery stock and other plants and plant products; to establish and maintain quarantine districts for plant diseases and insect pests, and to permit and regulate the movement of fruits, plants, and vegetables therefrom; to prevent the movement of cotton and cottonseed from Mexico into the United States; and to prevent the entrance and spread of the pink bollworm of cotton into this country.

(c) ERADICATION OF PINK BOLLWORM.

Appropriation, 1927.....	\$300,000
Budget, 1928.....	250,000
Decrease.....	50,000

There is an apparent decrease of \$50,000 in this appropriation and in the subappropriation for eradication, but the actual decrease is only \$15,000, the sum for \$35,000 having been transferred to the new item for enforcing the *Thurberia* weevil quarantine.

Work Done Under Appropriation.

The work under this item is conducted under three main projects, as follows:

(1) Cooperation with Mexico.— A small part of the total amount is used to make surveys to determine the actual distribution of the pink bollworm in Mexico and to exterminate local infestations in Mexico adjacent to the United States border, in cooperation with local Mexican authorities.

(2) Research Work.— An appropriation of \$5,000 is used for conducting life history studies of the pink bollworm in Mexico or elsewhere, as a basis for control measures.

(3) Eradication.— The bulk of the appropriation is devoted to actual eradication of the pink bollworm in Texas and elsewhere, and to control measures to prevent the spread of the pest, as well as the movement of cotton from restricted areas except under Federal inspection and certification. Owing to the increase in cotton planting in Mexico adjacent to the United States, considerable scouting work is required. As there are practically no precautions taken by the Mexican Government to prevent the carriage of the insect beyond the borders the certain infestations in western Texas have grown in intensity involving an increased danger of the carriage of the infested materials into other parts of the cotton belt. A system of traffic inspection is in operation in cooperation with the State of Texas, requiring the services of at least fifteen inspectors in this work. In New Mexico law has been passed requiring the safe guarding of all seeds passed through gins, and as the State has provided no funds for the enforcement of this law it has become necessary for this Department to supervise the operation of some twenty-five gins. It is also necessary to conduct one or more large-scale experiments in western Texas to determine the extent to which the infestation can be reduced and possibly eliminated altogether by cleanup methods.

(d) ERADICATION OF PARLATORIA DATE SCALE.

Appropriation, 1927.....	\$21,760
Budget, 1928.....	<u>19,000</u>
Decrease.....	2,760

Work Done Under Appropriation.

This appropriation is used for the payment of salaries and other expenses in connection with the eradication of the Parlatoria date scale in portions of California, Arizona, and Texas, and in the enforcement of Quarantine No. 6 which prohibits the movement of date palm from the quarantine area except under Federal inspection and certification.

(e) ENFORCEMENT OF THE THURBERIA WEEVIL QUARANTINE.

Appropriation, 1927.....	\$-----
Budget, 1928.....	<u>35,000</u>
Increase.....	35,000

This is a new item, with an apparent increase of \$35,000, for

enforcing the rules and regulations supplemental to notice of quarantine No. 61 on account of the Thurberia (Arizona) weevil. The authorization contained in the Deficiency Act of July 3, 1926, provides that \$35,000 of the 1927 Appropriation for eradicating the pink bollworm of cotton may be used for these purposes during that fiscal year. For the fiscal year 1928, the estimates submitted for eradicating the pink bollworm of cotton has been reduced by \$35,000 to provide funds for the Thurberia weevil quarantine. There is, therefore, no actual increase on account of this new item.

Work Done Under Appropriation.

The work to be accomplished under this item involves scouting and the control of the interstate movement of cotton linters, gin waste, and all other forms of cotton lint and samples grown in infested areas.

PACKERS AND STOCKYARDS ADMINISTRATION.

ADMINISTRATION OF PACKERS AND STOCKYARDS ACT.

Appropriation, 1927	\$440,000
Budget, 1928	<u>420,000</u>
Decrease	20,000

Work Done Under Appropriation.

The Packers and Stockyards Act, which by its terms is entrusted to the Secretary of Agriculture for enforcement, is designed to prevent and correct irregularities or abuses that may exist in the operations of persons engaged in the live-stock and meat-packing industry. Unfair, unjustly discriminatory, or deceptive practices, the control of prices, or the establishment or monopolies in connection with the buying or selling of livestock in commerce, and the handling of meat or meat products in commerce are defined as violations. Provision is made for supervision of rates and charges of stockyard owners and market agencies at public markets. The act requires that rates and charges shall be reasonable and nondiscriminatory. The Secretary may fix such rates and charges.

GRAIN FUTURES ADMINISTRATION.

Appropriation, 1927....	\$121,530.
Budget, 1928.....	<u>135,000</u>
Increase.....	13,470

There is an increase of \$13,470 in this item which is made necessary in order to provide a branch office at New York to take care of the work resulting from the recent designation of the New York Produce Exchange as a contract market under the Grain Futures Act. It is essential that a branch office be opened at New York, as approximately 15 per cent of the total volume of trade in grain futures in the United States originates in New York territory. This likewise includes the greater portion of the European business which feeds into our markets. Moreover, some of the largest professional speculators trade through New York houses and a close supervision of their transactions is essential in connection with the enforcement of the Grain Futures Act.

Work Done Under Appropriation.

This appropriation provides for the administration of the provisions of the Grain Futures Act of September 21, 1922, which brings under the supervision of the Federal Government certain phases of the business conducted on all grain future exchanges in the United States. This law requires that adequate records be kept by members of these exchanges of all transactions in grain for both cash and future delivery, and that such records shall be subject to inspection by the Federal Government; that reports respecting such transactions shall be made to the Secretary of Agriculture upon request; and that the dissemination of false and misleading information about crop and market conditions be prevented; that manipulation or attempts to manipulate or corner the grain futures market be suppressed. It also prohibits discrimination by grain future exchanges against cooperative associations of producers who desire membership and who agree to meet the conditions, lawfully required of other members, except in respect to patronage dividends; and provides for investigation and dissemination of information concerning grain marketing.

FOOD, DRUG AND INSECTICIDE ADMINISTRATION.

In connection with the consolidation in the Bureau of Chemistry and Soils of all the research work of the Department on chemistry and soils, it is proposed to establish a regulatory unit, to be known as the Food, Drug and Insecticide Administration, to take over the law enforcement activities of the present Bureau of Chemistry and the Insecticide and Fungicide Board, including the work under the Food and Drugs Act, Tea Act, Naval Stores Act, collaboration with other Departments of the Government in the administration of various laws requiring analytical work for their proper enforcement, and the enforcement of the Insecticide Act.

(a) SALARIES.

Appropriation, 1927	\$ 269,903
Budget, 1928	264,260
Decrease	5,643

The amount shown for salaries is a portion of the "Salaries" appropriation of the present Bureau of Chemistry, applicable to items transferred to the new Food, Drug and Insecticide Administration.

The language of this paragraph is the same as that for the "Salaries" item of the present Bureau of Chemistry.

Work Done Under Appropriation.

The appropriation will provide for the salaries of the administrative and clerical personnel of the new Food, Drug and Insecticide Administration.

(b) INTRODUCTORY PARAGRAPH, FOOD, DRUG AND INSECTICIDE
ADMINISTRATION.

The introductory general expense paragraph of the Food, Drug and Insecticide Administration is the same as the general expense paragraph for the present Bureau of Chemistry.

(c) COLLABORATION WITH OTHER DEPARTMENTS.

Appropriation, 1927	\$13,865
Budget, 1928	13,865

This item has been transferred from the present Bureau of Chemistry, without change.

Work Done Under Appropriation.

Chemical work is done for the Post Office Department in applying the fraud order laws to drugs and medicinal products.

(d) ENFORCEMENT OF FOOD AND DRUGS ACT.

Appropriation, 1927	\$760,668
Budget, 1928	760,260
Decrease	408

This item has been transferred from the present Bureau of Chemistry, without change in language. The amount of \$760,668 for 1927 is composed of the present appropriation of \$785,408 for "Enforcement of the Food and Drugs Act" minus a transfer of \$24,740 to the appropriation "Agricultural Chemical Investigations" of the proposed Bureau of Chemistry and Soils, which bureau will conduct certain fundamental research on the chemical composition of foods and on the changes that take place in foods as the result of the action of micro-organisms.

Work Done Under Appropriation.

This appropriation provides for the enforcement of the Federal food and drugs act, commonly called the pure food law. The purpose of this act is to prevent the shipment into interstate or foreign commerce and the manufacture and sale in the District of Columbia and other territory in which the Federal Government has jurisdiction of adulterated or misbranded foods and drugs. To enforce this act it is necessary to maintain supervision of the enormous volume of foods and drugs shipped within its jurisdiction. This requires the inspection of food factories, the examination of shipments, the analysis of samples, and the presentation of evidence in court.

The volume and variety of foods and drugs that are shipped into interstate and foreign commerce under the jurisdiction of the Federal food and drugs act increases steadily from year to year. The value of all foods manufactured annually is more than four times that of the annual output of all iron and steel mills, four times that of men's and women's clothing, six times that of automobiles, and ten times the value of boots and shoes. These comparisons are based on the value of manufactured foods and do not take into consideration the enormous traffic in unmanufactured foods, such as eggs, milk, nuts, fruit, vegetables, grains, and the like, to which the Federal food and drugs act applies when they are shipped within its jurisdiction. In the enforcement of this act, the Bureau of Chemistry is required to see that all foods and drugs imported from foreign countries as well as all that are shipped into interstate commerce are free from adulteration and misbranding under the act.

(e) ENFORCEMENT OF TEA IMPORTATION ACT.

Appropriation, 1927	\$40,690
Budget, 1928	38,000
Decrease	2,690

This item has been transferred from the present Bureau of Chemistry, without change in language.

Work Done Under Appropriation.

Under the Tea Act every consignment of tea imported into the United States is inspected both as to purity and quality. A board of tea experts

determines a suitable standard for tea each year, and no tea for beverage purposes is permitted entry into the United States that falls below that standard. Before the enactment of the Tea Importation Act the United States was the dumping ground for much low grade tea that was unfit for making a good beverage.

(f) ENFORCEMENT OF THE NAVAL STORES ACT.

Appropriation, 1927	\$25,000
Budget, 1928	<u>35,000</u>
Increase	10,000

This item has been transferred from the present Bureau of Chemistry. For the fiscal year 1927 \$35,000 was appropriated for "Naval Stores Investigations", of which \$25,000 was used for the enforcement of the Naval Stores Act and \$10,000 for investigational work. The \$25,000 used for regulatory work has now been transferred to the Food, Drug and Insecticide Administration and the \$10,000 for research work has been placed in the new Bureau of Chemistry and Soils as a separate subappropriation. In order more effectively to enforce the provisions of the Naval Stores Act of March 3, 1923, an increase of \$10,000 is recommended for extending the work in the service features of the Act. This work consists of grading naval stores and is done at the request of the party using the naval stores. A fee covering the cost of the service is charged and turned into the Treasury as miscellaneous receipts. Practically all of the \$10,000 increase recommended will be returned to the Treasury.

Work Done Under Appropriation.

The Naval Stores Act provides that the Secretary of Agriculture "shall examine, if practicable, upon request of any interested person, any naval stores and shall analyze, classify, or grade the same on tender of the cost thereof as required by him, under such regulations as he may prescribe. He shall furnish a certificate showing the analysis, classification or grade of such naval stores, which certificate shall be prima facie evidence of the analysis, classification, or grade of such naval stores and of the contents of any package from which the same may have been taken, as well as of the correctness of such analysis, classification or grade and shall be admissible as such in any court".

The Secretary of Agriculture is authorized to purchase from time to time samples of spirits of turpentine and of anything offered for sale as such for the purpose of analysis, classification, or grading, and of detecting any violation of the act. Naval stores offered for import or export as well as naval stores that enter interstate commerce are subject to all the provisions of the Act.

(g) ENFORCEMENT OF THE INSECTICIDE ACT.

Appropriation, 1927	\$200,795
Budget, 1928	<u>200,000</u>
Decrease	795

In connection with the consolidation in a regulatory unit of the law enforcement activities of the present Bureau of Chemistry, it is proposed also to include under this new administration the activities authorized in the second paragraph under the caption "General Expenses, Enforcement of the Insecticide Act". The entire language under the general heading "Enforcement of the Insecticide Act" has been omitted with the exception of the paragraph reading as follows: "For enabling the Secretary of Agriculture to carry into effect the provisions of the Act of April 26, 1910, entitled 'An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded Paris greens, lead arsenates, other insecticides, and also fungicides, and for regulating traffic therein, and for other purposes!'" This has been retained and transferred to the Food, Drug and Insecticide Administration. The appropriation for "General Expenses" in 1927 was \$163,775 and that for "Salaries" \$37,020, a total of \$200,795.

Change in Language.

All language under the general heading "Enforcement of the Insecticide Act," has been eliminated, with the exception of the second paragraph under the caption "General Expenses, Enforcement of the Insecticide Act." The language eliminated is no longer required as all reference to the activities authorized for the enforcement of this Act will be hereafter included in the authorizations for the Food, Drug and Insecticide Administration.

The words "To enable" in the first line of the retained paragraph for the enforcement of the Insecticide Act have been changed to "For enabling" in order to make it uniform with other paragraphs appearing under the Food, Drug and Insecticide Administration.

Work Done Under Appropriation.

This fund, for the most part, is used for the payment of salaries and expenses of scientists and inspectors engaged in the work of enforcing the Insecticide Act, and for the general miscellaneous expenses in connection with this work. The Insecticide Act places upon the Department the responsibility of regulating interstate shipments and importations of insecticides and fungicides into the United States at the various ports of entry. The provisions of the law are designed to protect farmers, fruit growers, market gardeners, and stock and poultry raisers from fraudulent, misbranded, and adulterated insecticides and fungicides. Products used to rid the household of insects, and disinfectants, germicides, etc., which are used to combat or kill bacteria also come within the scope of the work. The enforcement of the law has had a marked effect upon the industry engaged in the manufacture and sale of insecticides and fungicides, and each year sees progress in the direction of more truthful statements and a higher quality in most of the products on the market. However, the manufacturing and use of insecticides and fungicides has tremendously increased since the inception of this regulatory work and the Insecticide and Fungicide Board is constantly confronted with new problems and new products requiring inspection. Especially important at present are disinfectants, boll-weevil remedies, lice preparations, calcium arsenate, lime-sulphur preparations, and fungicides used on the Pacific coast.

(h) ENABLING PARAGRAPH, FOOD, DRUG AND
INSECTICIDE ADMINISTRATION.

An enabling paragraph has been inserted at the end of the section pertaining to the Food, Drug and Insecticide Administration, with new language reading as follows: "Hereafter the examinations of specimens of foods, drugs, insecticides, Paris greens, lead arsenates, and fungicides provided for by section 4 of the Food and Drugs Act of June 30, 1906, and by section 4 of the Insecticide Act of 1910, shall be made in the Food, Drug, and Insecticide Administration or in such other branches of the Department of Agriculture as the Secretary of Agriculture may direct". This language is necessary in order that the powers and duties heretofore conferred on the Bureau of Chemistry by the Food and Drugs Act and other laws, and on the Insecticide and Fungicide Board by the Insecticide Act, may be exercised by the Food, Drug and Insecticide Administration, which unit will take over the regulatory work of the Bureau of Chemistry and the Insecticide and Fungicide Board when these two units cease to exist.

(i) LIMITATION ON PERSONAL SERVICES IN
THE DISTRICT OF COLUMBIA.

The 1927 limitation on personal services in the District of Columbia carried in the present Bureau of Chemistry is \$618,000, of which \$307,871 is taken up by the Food, Drug and Insecticide Administration and \$310,129 included in the limitation under the new Bureau of Chemistry and Soils. The 1927 limitation on personal services in the District of Columbia carried in the present Insecticide and Fungicide Board is \$112,000, which together with the amount of \$307,871 transferred from the present Bureau of Chemistry, makes a total of \$419,871 available for personal services in the District of Columbia under the new Food, Drug and Insecticide Administration.

INTERCHANGE OF APPROPRIATIONS

"Not to exceed 10 per centum of the foregoing amounts for the miscellaneous expenses of the work of any bureau, division, or office herein provided for shall be available interchangeably for expenditures on the objects included within the general expenses of such bureau, division, or office, but no more than 10 per centum shall be added to any one item of appropriation except in cases of extraordinary emergency, and then only upon the written order of the Secretary of Agriculture."

The provisions of this paragraph are retained without change for the fiscal year 1928.

MISCELLANEOUS ITEMS

(a) FOREST FIRE COOPERATION

Appropriation, 1927.....	\$710,000
Budget, 1928.....	<u>1,000,000</u>
Increase.....	290,000

The increase of \$290,000 will be used to increase the allotment to States which are cooperating with the Federal Government in fire protection, and to make initial allotments to additional States which are qualifying for such cooperation. This increase will enable the Government to more nearly carry out its obligations under the policy laid down by the Clarke-McNary law which provides that the Federal Government will carry 25 per cent of the cost of adequate protection of forest lands to the extent that States and private owners are organized and financed to handle the remaining 75 per cent of the cost.

Work Done Under Appropriation.

(1) Fire suppression:- Of the total of \$710,000 available for work in 1927, under the first three sections of the Clarke-McNary Reforestation Act, \$675,000 is used for cooperating with the States in the prevention and suppression of fire on forest lands in State and private ownership. Thirty three of the 39 timber-producing States now receive cooperation of this nature, namely, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Ohio, Virginia, West Virginia, North Carolina, Tennessee, Kentucky, Georgia, Alabama, Louisiana, Mississippi, Texas, Oklahoma, Missouri, Michigan, Wisconsin, Minnesota, South Dakota, Montana, Idaho, Washington, Oregon, California, and New Mexico. Two additional States - Florida and Arkansas - are expected to take the necessary measures to enable them to qualify during 1928. The Federal fund is allotted to the States on the basis of the estimated cost of protecting State and private forest lands and on the basis of a budget prepared in accordance with an agreement with each State. Federal expenditure is made in the form of reimbursement to the State for the Government's pro rata share of expenditures incurred on the basis of the budget submitted. The expenditure of funds and the results secured are carefully inspected in every cooperating State. The cooperation is not continued unless reasonable standards are attained. The total outlay for forest fire prevention and suppression from Federal, State, and private sources during the current year will approximate \$4,675,000 of which less than 15 per cent represents the share of the Federal Government. The States are now spending in this cooperation about \$2,000,000 annually, and private forest owners an equal amount.

(2) Timber taxation studies:- Under authority of the Clarke-McNary law, the Secretary of Agriculture will devote \$35,000 for each year for the next several years for a nation-wide study of forest taxation. The general property tax is difficult of application to forests, because trees require many years to reach maturity, and recurrent annual taxes on growing timber without corresponding annual returns from which to pay the taxes are a discouragement to reforestation. The study aims to determine just how heavily

forests are now taxed as compared with other forms of property, the effect of present tax methods on reforestation, and possible modification in tax methods to insure fairness both to the timberland owner and to the local communities dependent on tax revenues. The study will be in charge of a tax expert, aided by a small staff of economists and foresters, and will involve field studies of tax records, tax methods, values of forest properties, sources of local revenue, and constitutional and legal constrictions on forest tax reform.

(b) COOPERATIVE FARM FORESTRY.

Appropriation, 1927.....	\$50,000
Budget, 1928.....	<u>60,000</u>
Increase.....	10,000

The increase of \$10,000 is to meet the cooperative proposals under the Clarke-McNary Reforestation Act, which have been made by the States of Idaho, Kansas, Kentucky, Montana, Oregon, South Dakota and Utah. While there is definite authorization by the Congress for an appropriation up to \$100,000, appropriations for the item for the past two years have been only \$50,000. These small appropriations have not yet interfered with the work, but a point has been reached where the Department will be unable to meet the needs of the States for further cooperation, and as the work is growing rapidly this condition will be intensified by the beginning of the next fiscal year. During the fiscal year 1926 cooperation on the basis of approximately \$1,500 to each State was entered into with Alabama, California, Colorado, Connecticut, Georgia, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Virginia, West Virginia and Wisconsin. In addition, cooperation became effective the first of the current fiscal year with Arkansas, Louisiana, Mississippi and Nebraska. The 29 States with which cooperation is now effective, together with the authorization for payment of salaries in the District of Columbia out of the appropriation, obligates practically the entire \$50,000.

Work Done Under Appropriation.

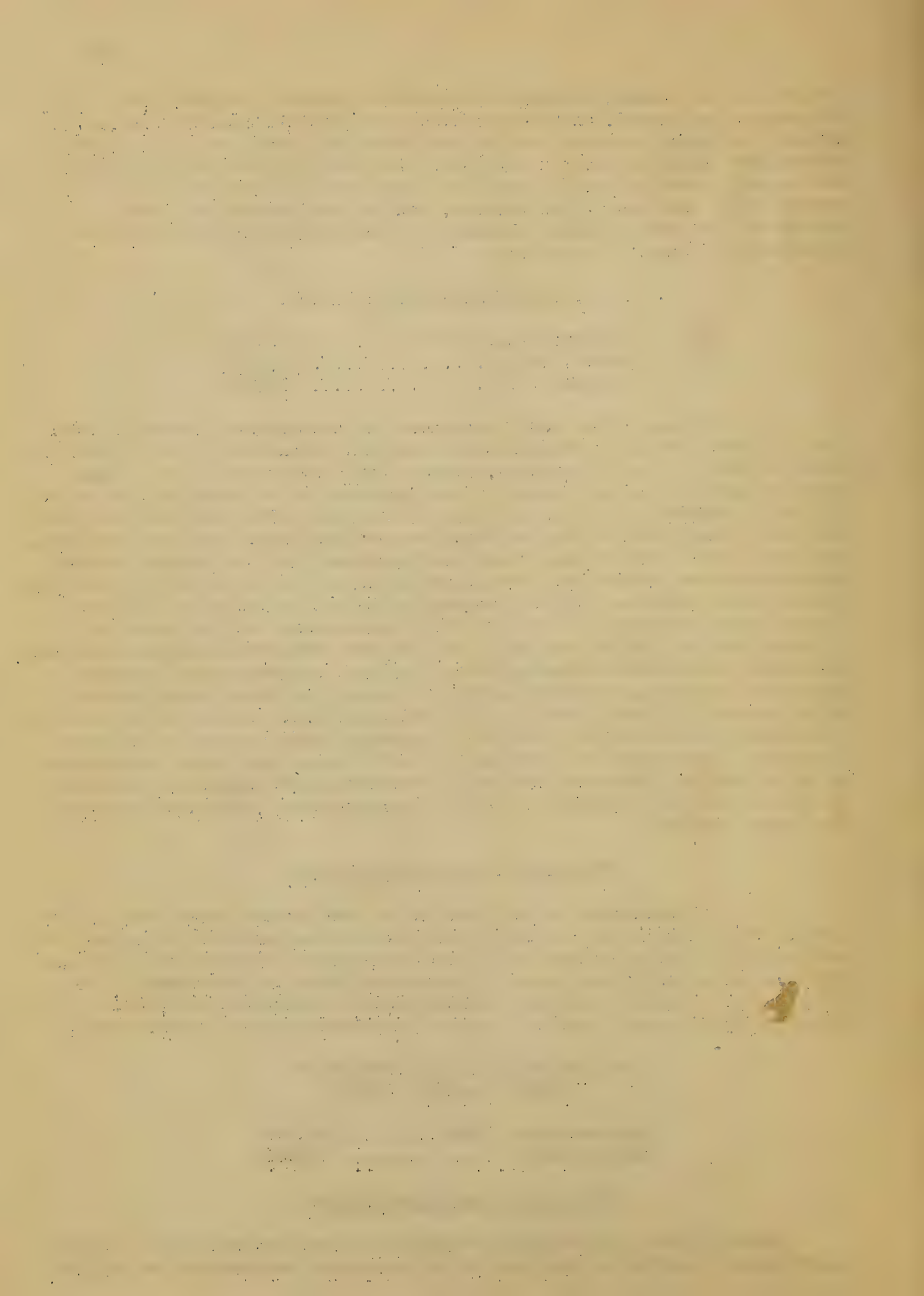
This appropriation is utilized in the cooperative employment of extension foresters in the various States who are engaged in carrying out the work specified under Section 5 of the Clarke-McNary Reforestation Act, and provides specifically for assisting owners of farms in establishing, improving, and renewing woodlots, shelter belts, windbreaks, and other valuable forest growth, and in growing and renewing useful timber crops.

(c) COOPERATIVE DISTRIBUTION OF FOREST PLANTING STOCK

Appropriation, 1927.....	\$75,000
Budget, 1928.....	75,000

Work Done Under Appropriation

This \$75,000 is provided for conducting work under Section 4 of the Clarke-McNary law and is allotted to 34 States and territories as follows:



Alabama, California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Porto Rico, Vermont, Virginia, Washington, Wisconsin, and Wyoming. These allotments are made primarily for the establishment of new nurseries, the enlargement of existing nurseries, and the purchases of seed, all in connection with the distribution of forest planting stock for use on farms. As in forest fire cooperation, the States make the original disbursements and claim reimbursement for the Government's pro rata share of the expenditures incurred. Total State budgets for the current fiscal year amount to \$280,000.

(d) ACQUISITION OF ADDITIONAL FOREST LANDS.

Appropriation, 1927.....	\$1,000,000
Budget, 1928.....	1,000,000

CHANGE OF LANGUAGE.

The language of this item has been amended by omitting in the limitation personal service in the District of Columbia the word "departmental" and by inserting after the word "service" the words "and supplies and equipment". These changes are made necessary by the omission of the paragraph authorizing personal service, etc., under the Act of March 1, 1911, formerly appearing at the end of the Forest Service section. This action was taken in order to simplify the language under this item and to combine the authorization with the limitation in one paragraph:

Work Done Under Appropriation.

This appropriation is needed to carry out the policy established by Congress through the enactment of the Act of March 1, 1911 (36 Stat. 961), and confirmed and extended by the Act of June 7, 1924 (43 Stat. 653). Under the first Act, 22 purchase areas have been established, of which 43 percent of the purchaseable area, \$2,584,076, have been acquired or approved for acquisition to date at a total cost of \$12,829,292.53 exclusive of administrative cost of purchases. The completion of purchases within these areas, with the possible addition of an area in Kentucky and another in Missouri or Oklahoma, will cost approximately \$20,000,000. Under the second Act, the establishment of additional purchase areas in the Lake States and the southern pine States is contemplated as soon as funds are made available for purchase of lands. To carry the complete program to fruition will require total expenditures of approximately forty million dollars.

(e) LIVESTOCK WORK IN CANE-SUGAR AND COTTON DISTRICTS.

Appropriation, 1927....	\$43,930
Budget, 1928.....	43,930

Work Done Under Appropriation

The area served by the station at Jeanerette consists largely of

the State of Louisiana, eastern Texas, southeastern Arkansas, and eastern Mississippi. This area is essentially a one-crop district, where climatic conditions are such that if the sugar-cane crop fails farmers are confronted with difficult problems. The most practical method of solution has seemed to be through livestock production. In this connection, the raising and fattening of cattle and the production of hogs are especially practicable within this area. The problems which have received special attention are the production and utilization of locally-grown feeds, control and prevention of livestock diseases and damage to livestock from insect pests, as well as the methods of breeding, feeding, and management. The station is well equipped with experimental and work animals, and with farm equipment and machinery.

(f) WESTERN DAIRYING AND LIVESTOCK WORK.

Appropriation, 1927.....	\$41,610
Budget, 1928.....	<u>45,610</u>
Increase.....	4,000

The increase of \$4,000 in this item will be used to provide an assistant dairy husbandman at \$2,400 per annum at the Huntley, Montana, station to supervise the proving of bulls and to keep production records of their offspring, the remaining \$1,600 to be used for the purchase of feeds and other supplies.

Work Done Under Appropriation.

(1) Animal husbandry investigations.— The livestock production features of this work are conducted at Big Springs, Texas, Tucumcari, N. Mex., Newell, S. Dak., Havre, Huntley, and Miles City, Mont., and Ardmore, S. Dak., and consist of grazing, feeding, wintering and breeding, experiments, the results of which provide a basis for successful livestock raising under semiarid or irrigated conditions.

(2) Dairying work.— The dairying work under this appropriation is conducted entirely at the Ardmore, S. Dak., and Huntley, Mont., field stations, for the purpose of demonstrating dairy practices peculiar to semiarid and irrigated regions. At the Huntley, Mont., station considerable work is also being conducted in dairy cattle breeding in conjunction with the general breeding project of the bureau. Problems in breeding which are being studied include the effect of pregnancy and other factors on the weight of cattle, and the proving of dairy bulls by comparing the production records of the daughters of bulls with the records of the dams of such daughters.

(g) DAIRYING AND LIVESTOCK EXPERIMENT STATION,
MANDAN, NORTH DAKOTA.

Appropriation, 1927.....	\$-----
Budget, 1928.....	<u>25,000</u>
Increase.....	25,000

This is a new item for the purpose of carrying out the provisions of the Act approved July 3, 1926, establishing a dairying and livestock

experiment station at Mandan, North Dakota. It is desirable that the appropriation covered by this item be made immediately available in order that the work may be started during the Spring of 1927.

Work Done Under Appropriation.

The purpose of the work at this station is to study the best practices of crop growing for a dairy herd and the feeding and management of the cattle under conditions existing in that region, and to serve as a demonstration farm where dairymen of that locality may observe the practices adopted as a result of these studies.

(h) PASSENGER-CARRYING VEHICLES.

Reduction in Amounts Available for Purchases, and Changes in Language.

The amount which may be expended for the purchase, maintenance, repair, and operation of passenger-carrying vehicles necessary in the conduct of field work of the Department outside the District of Columbia has been decreased from \$150,000 (the 1927 figure) to \$135,000, and of this the portion available for the purchase of such vehicles has been reduced from \$45,000 (the 1927 figure) to \$30,000. The amount available for the purchase of passenger-carrying vehicles from the funds provided for carrying out the provisions of the Federal Highway Act of November 9, 1921, has been reduced from \$40,000 (the 1927 figure) to \$25,000.

Changes in language have been made in the second proviso. Heretofore this proviso authorized, in connection with the purchase of new vehicles, the exchange of old vehicles which were turned over to this Department from war surplus and have become unserviceable. The changes of language are necessary for the reason that a number of the machines which have replaced the cars originally secured from the War Department will become unserviceable during the fiscal year 1928 and will in turn require replacement. During that year approximately 75 per cent of old machines obtained from war surplus and 25 per cent of those which have replaced war surplus should be turned in on the purchase of new machines, including two vehicles used in the administrative work of the Bureau of Public Roads in the District of Columbia.

Immediately following this proviso, an additional proviso has been inserted limiting expenditures from appropriations contained in this Act for the maintenance, upkeep and repair, exclusive of garage rent, pay of operator, fuel and lubricants, on any one vehicle used by the Department to one-third of the market price of a new vehicle of the same make or class, and in any case to not more than \$500.

The language of the paragraph has also been amended by inserting in the last proviso the words "tractors, road equipment" in three places after the word "vehicles". This change is necessary to provide specific authority for the exchange of worn-out tractors and road building equipment in part payment for new equipment of this character purchased by the Department. To permit the exchange of such unserviceable equipment is decidedly in the interest of economy.

Work Done Under Appropriation.

This paragraph carries no appropriation. It merely limits the amount that may be expended from the various appropriations of the Department for the purchase, maintenance, etc., of passenger-carrying vehicles in compliance with law.

(i) ERADICATION OF FOOT-AND-MOUTH DISEASE.

Appropriation, 1927.....	\$5,000
Budget, 1928.....	100
Decrease.....	4,900

This nominal appropriation is retained in the Agricultural Act merely to keep alive the authority of the Department to act promptly on the outbreak of disease. It is well understood that the sum specified would be utterly inadequate to meet the expenses of any outbreak of foot-and-mouth disease. In each such case Congress has provided sufficient funds by special enactments in deficiency acts.

(j) MILEAGE RATES FOR MOTOR VEHICLES.

There is no change in this paragraph except that the fiscal year has been changed from 1927 to 1928.

This paragraph authorizes commutation rates of 7 cents per mile for automobiles and 3 cents per mile for motorcycles, in lieu of the actual operating expenses, to cover cost of gasoline, oil, garage en route, ferriage, to ls, etc., in connection with the official use of privately-owned vehicles.

(k) COLLECTION OF SEED-GRAIN LOANS.

Appropriation, 1927....	\$15,000
Budget, 1928.....	10,000
Decrease.....	5,000

There is a decrease of \$5,000 in this item. The work of collecting seed grain loans is gradually being brought to a close, with a corresponding reduction in personnel and expenditures.

Work Done Under Appropriation

This appropriation is used for the collection of seed loans now outstanding in the Northwestern States and in New Mexico. It provides for the employment of such persons in the City of Washington and elsewhere as are deemed necessary to accomplish this purpose.

(l) FOREST ROADS AND TRAILS.

Appropriation, 1927.....	\$5,000,000
Budget, 1928.....	7,500,000
Increase.....	2,500,000

There is an apparent increase of \$2,500,000 in this item over the appropriation of \$5,000,000 carried in the Agricultural Act for the fiscal year 1927. But taking into consideration the fact that approximately \$1,200,000 was carried over from the fiscal year 1926 and that it is proposed to request a deficiency appropriation of \$3,000,000 for the fiscal year 1927 there is an actual decrease in 1928 \$1,700,000 in this appropriation. In the Department's letter of June 18, 1926, to the Bureau of the Budget, it was stated that the necessary expenditures during 1927 would exceed the available funds by approximately \$2,000,000.

Later estimates from the field indicate that excess expenditures will amount to \$3,000,000, caused by the extremely favorable road building season in the summer and fall of 1926. Based on the best information at present available the estimated expenditures for the fiscal year 1927 will be \$9,200,000. This estimate has been conservatively made and it is expected that there will be no balance carried forward at the end of the present fiscal year. The amount available for expenditure during 1928 therefore will be \$7,500,000.

Change in Language

The language of the paragraph has been amended so as to indicate the amount to be appropriated under each of the authorizations for the fiscal years 1927 and 1928 in accordance with the Acts approved February 12, 1925 and June 22, 1926, respectively, and so as to direct the apportionment and prorating among the several States, Alaska, and Porto Rico of the \$7,500,000 authorized to be appropriated for the fiscal year 1928 by the Act of June 22, 1926. At the present time the balance remaining in the 1927 authorization is \$6,225,000. It will be noted that as the item is written the sum of \$3,225,000 is said to be the remainder of the 1927 authorization. The item has been stated in this way since it is proposed to submit a deficiency estimate to Congress for \$3,000,000 and it is safe to assume that the deficiency appropriation will be made prior to the passage of the Agricultural Appropriation Act. The language has also been amended by adding at the end of the paragraph the following proviso: "Provided further, That this appropriation shall be available for the construction of buildings necessary for the storage of equipment and supplies used for road and trail construction and maintenance". This authority is necessary to permit the erection of sheds and other temporary structures for storing equipment, supplies, and materials used in forest road and trail construction work done by day laborers under the immediate direction of Forest Service officials.

Work Done Under Appropriation

The funds made available by this item are used for the following purposes:

(1) Forest highways.— For the survey, construction, and maintenance of roads which are necessary to the administration, protection, and development of the national forests but which are of greater value to the States, counties, or communities within or near the forests than to the Federal property itself. The difference between this appropriation and the Federal aid provided for by other sections of the Federal Highway Act is that the forest highway fund is based upon the ownership of land by the Federal Government and is made in order that this may be developed and protected.

(2) Forest road development.— For the survey, construction, and maintenance of roads and trails which are necessary to the administration, protection, or development of the national forests and which are of greater value for this purpose than they are to the States, counties, and communities within or near the forests. Of the total expenditure to date, 35 per cent has been used for the construction and maintenance of trails primarily for use in protecting the national forests from fire.

(m) FEDERAL AID HIGHWAY SYSTEM.

Appropriation, 1927.....	\$75,000,000
Budget, 1928.....	75,000,000

The language of the paragraph has been amended to read as follows:
 "For carrying out the provisions of the Act entitled 'An Act to provide that the United States shall aid the States in the construction of rural post roads, and for other purposes,' approved July 11, 1916, and all Acts amendatory thereof and supplementary thereto, to be expended in accordance with the provisions of said Act as amended, including not to exceed \$420,000 for departmental personal services in the District of Columbia, \$75,000,000 to remain available until expended, which sum is composed of \$23,800,000, the remainder of the sum of \$75,000,000 authorized to be appropriated for the fiscal year ending June 30, 1926, and \$51,200,000 part of the sum of \$75,000,000 authorized to be appropriated for the fiscal year ending June 30, 1927, by paragraph 1 of the Act approved February 12, 1925".

Changes in Language.

The language of the paragraph has been amended so as to indicate the amounts to be appropriated under each of the authorizations for the fiscal years 1926 and 1927 in accordance with the Act approved February 12, 1925.

Work Done Under Appropriation.

This item provides for cooperation with the several States in the construction of Federal aid highways. The money is warranted by the U. S. Treasury direct to the various State highway departments upon certification by the Secretary of Agriculture who administers the work and passes upon road projects submitted by the States for approval. The States are required to match the Federal appropriations.

